



KNOWLEDGE, SKILLS, ABILITIES, AND OTHER
CHARACTERISTICS: AN EXAMINATION OF
MANAGERIAL PERCEPTIONS OF EFFECTIVE
CONTRACTING OFFICERS

Thesis

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The views expressed in this thesis are those of the authors and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

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THESIS

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Contracting Management

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Abstract

This study examined the attributes contracting managers perceived to be most critical in effective contracting officers. Questionnaires were used to gather relevant data from managers in the operational, specialized, and systems contracting specialty areas. The resultant data was classified and weighted in accordance with the formula defined in the methodology. Additionally, some respondents provided comments via the follow-up interviews. The resultant data was analyzed qualitatively in order to determine the extent of concurrence in managerial perceptions. In addition, the researchers attempted to seek answers in three additional areas. First, they examined the degree to which critical attributes varied by specialty area. Second, they examined the degree to which managers perceived differences in attribute criticality with respect to the contracting officer's status as military or civil servant; and finally, they examined the extent to which the DAU certification courses address the educational needs of the contracting personnel. Ultimately, the study defined the attributes and determined that they varied little by specialty area. Additionally, the managers perceived the same attributes as critical regardless of duty status, and finally, it appears DAU provides acceptable training in knowledge related attributes, however, training personnel in other attributes may do so more effectively in alternate forums.

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I. Introduction

Background

According to Air Force Manual (AFMAN) 36-2105, the responsibilities of officers assigned to the 64PX career field are summarized as follows:

Plans, organizes, manages, and accomplishes contracting functions to provide supplies and services essential to Air Force daily operations and war-fighting mission. Included are accomplishing contracting system processes, formulating contracting policy and procedures, coordinating, contracting activities, and directing contracting operations. The contracting system includes effective acquisition planning, solicitation, cost or price analysis, evaluating offers, source selection, contract award, and contract administration.
(6:220)

This summary presents a macro view of the general tasks normally accomplished by a contracting officer. Logically, it follows that the contracting officer must secure and employ specific attributes in order to accomplish these tasks. This study will attempt to define the attributes required to accomplish the contracting officer tasks, as

perceived by higher level managers working in this field. In doing so, it considers the attributes under the categorical headings: Knowledge, Skills, Abilities, and Other Characteristics. Correspondingly, this research will examine the extent to which the current training programs available to contracting officers provide them with the means to acquire these attributes.

In accordance with the previously identified objectives, the research team will address specific topics of interest affiliated with the study of the critical attributes. For instance, while much of the available literature indicates that similar levels of expertise are required by military and civil servant contracting officers, the research team assumes that contracting management may actually perceive differences with respect to attribute importance, depending on the contracting officer's duty status. The researchers base this presumption on pre-study conversations that they had with experienced military and civilian contracting officers. In addition, discussions conducted with fellow Graduate Contract Management program members have indicated that this idea is prevalent among the members of that group.

In another related area, overall career field standards have been significantly influenced and increased by the

Defense Acquisition Workforce Improvement Act (DAWIA) of 1990. The act led to the creation of the Air Force Acquisition Professional Development Program (10:1). As a result of program implementation, the Air Force developed certain time/experience and training requirements as bases for obtaining certifications in the 3-tier system. Particular basic Defense Acquisition University (DAU) courses are mandatory in order for individuals to progress through the certification levels (16). It is particularly noteworthy to consider that, in the past, DAU has provided separate basic level operational and systems level contracting courses. This would indicate that the training planners recognized that a number of distinctions existed in the critical job attributes with consideration to the trainees' specialty area. However, comparable documentation has not been located that suggests the military and civilian assignment systems recognize differences when considering individual assignments. Therefore, the researchers seek to determine the extent to which the managers from the diverse contracting specialty areas value different critical attributes in their contracting officers, with the expectation that this information might be applied in the assignment process.

Definitions

1. According to DoD 5000.52-M, 1995:ix, a CONTRACTING OFFICER is a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. For the purposes of this study, the term contracting officer refers exclusively to an individual whose authority exceeds the small purchase threshold.
2. OPERATIONAL CONTRACTING refers to a contracting squadron/office that organizes, plans, and executes the acquisition and administration of supply and service contracts for its parent base and tenant organizations, and carry out their peace time and war time deployment missions. The goal is to deliver on a timely basis the best valued supplies and services not otherwise available through other agencies or depots (7:3).
3. SPECIALIZED CONTRACTING refers to contracting officers who perform similar general functions as operational contracting officers, but with complex, specialized requirements, for instance Range contracts, large Medical contracts, or command wide purchases (7:3).
4. SYSTEMS CONTRACTING, as defined by the researchers for the purpose of this study, refers to purchasing and administration functions performed by warranted contracting

officers in support of Air Force Materiel Command (AFMC) major weapon system acquisitions, to include research and development (R&D) projects.

Objective

The intent of this thesis is to define and analyze the critical attributes that contracting managers believe an effective Air Force contracting officer must possess. This study will benefit Air Force leadership by providing them a rational basis for selecting qualified personnel into the contracting career field and/or warranting individuals as contracting officers. In addition, the researchers will compare the current DAU certification course objectives with the attributes considered critical by contracting managers. The evaluation will attempt to determine the extent to which the courses are providing instruction that assists the contracting officers in acquiring the critical attributes desired by contracting managers.

Justification

In this era of budget reductions, downsizing, and "doing more with less," it is becoming increasingly important to match qualified personnel with the proper assignment billets in order to obtain efficient production from the

selected personnel at the outset of the individual's career. In order to achieve that objective, the leaders of the Department of Defense, and more specifically, the Air Force, must ensure that they select the most qualified individuals for positions at the earliest stages of the assignment system. Emphasizing an initiative of this type in all career fields may potentially result in increased worker production and effectiveness as a result of the additional emphasis placed on specialty selection. Furthermore, a comparison of the degree to which the current training objectives parallel the managers' desired attributes would allow the research team to determine the extent to which the training programs are meeting managerial needs.

Scope

This study will incorporate data provided from questionnaire responses provided by military and civilian contracting managers, at the operational, specialized, and systems contracting levels. Questionnaires will be sent to USAF contracting offices worldwide. Interviews will be used to follow up initial questionnaire responses in the event the responses are unclear to the research team, or in

the event the respondents indicate a desire to speak with the team members for any reason.

Research Questions

In developing this study, the researchers expect to acquire sufficient data to generate substantial findings by addressing the following areas:

1. Knowledge, Skills, Abilities, and Other

Characteristics: From the perspective of management, what are the 5 most important attributes an effective contracting officer must possess under each of these categories, and what is the order of precedence for those attributes?

This question serves to identify the basic area of research for this study. Essentially, the researchers intend to collect data that will provide a baseline for comparing the attributes that contracting managers perceive as critical with the stated objectives of the current DAU certification courses.

2. Contracting Specialty Areas: Are these attributes considered equally important among the managers from the

different program areas, or do the managers' desired attributes differ with respect to specialty area?

The answer to this question provides the research team with the data necessary to determine the extent to which the desired attributes vary with respect to the managers' specialty area. Moreover, it will provide an indication of the degree to which the DAU courses provide contracting officer training consistent with the managers' perceived critical attributes.

3. Military versus civilian contracting officers: Do the managers believe that the same attributes of an effective contracting officer apply equally to military and civilian contracting officers, and vice-versa?

The answer to this question provides an indication as to whether the managers consider the same attributes to be critical with respect to the contracting officers' duty status. Evidence that the attributes are perceived to apply equally might indicate that the same training courses are appropriate for both categories. In contrast, a finding that the managers perceive the attribute criticality to vary with status may imply that consideration should be given to developing distinct training programs for the two categories.

4. To what extent do current contracting officer training opportunities support the recipients in acquiring the attributes sought by management?

The answer to this question might enable the decision-makers to consider modifications to existing training programs, or, alternatively, it may reinforce the perceived value of the existing programs.

Summary

A study of this type may prove beneficial to personnel at all levels of the contracting career field. It will allow managers to see how the attributes they perceive as important compare with those valued by other managers. It will also indicate to contracting officers and specialists the characteristics which management is seeking. Additionally, it will suggest areas for future emphasis to those responsible for developing contracting training programs.

The next section contains the literature review. It will discuss the existing research in this area and describe the objectives of the current DAU contracting training programs. The information will eventually be used

for comparison purposes in the findings of this research effort.

II. Literature Review

Introduction

This review addresses the effectiveness of contracting officers by separating the research literature into four major categories. The categories are (1) knowledge, (2) skills, (3) abilities, and (4) other characteristics. For baseline purposes, examples will be given for each category. Each category will have its significance supported by regulation, law, or previous studies. Following each "major category" discussion, a figure will provide a visual representation of the information provided.

Examples

A recent exercise was performed at AFIT in ORSC 542, Management and Behavior in Organizations. The current class of graduate students in contract management developed examples of attributes under each of the previously mentioned categories. The students' qualifications ranged from a 1st lieutenant who was previously in the program management field to a GS-13 who had been in the contracting field for seventeen years. When discussing knowledge,

knowledge attributes examples included knowledge of the law, regulations, hierarchy of procurement, and business practices. Knowledge of the law and regulations were determined to be obtained through DAU courses and work experiences. The work experiences mentioned by the students focused on the researching of the regulations and laws to develop contracting scenario solutions. Regulations alluded to the official documents frequently referenced (i.e. FAR, DFARS, AFFARS, etc.). The hierarchy of procurement referred to the different levels of programs (i.e. MCAT1) and the various levels of approvals that are required. The knowledge of business practices focused on the common modes of operation found in the commercial sector. During the discussion of the skills required, the students determined that administrative, organizational, computer, and negotiation skills were imperative. Administrative and organizational skills focused on the maintaining of contract files, scheduling of meetings, and the need to efficiently manage large quantities of paperwork. Computer skills were broadly defined and concentrated on an individuals efficient use of common software products. Negotiation talent referred to the face to face interaction with the contractor, and was notably characterized as being able to maintain a "poker face."

The students' examples for the requisite abilities were analytical, perceptual, effective communication both written and oral, and intellectual aptitudes. The need for analytical and perceptual abilities centered on the processing of numerical data and being able to extrapolate it's meaning. Effective communication was described as the conveyance of an individual's thoughts, both written and oral. This was determined to be critical because of the infinite amount of correspondence sent to contractors and the numerous briefings that contracting officers must present. Intellectual aptitude was discussed and defined as an individual's ability to think "out of the box." While the exercise was not performed specifically for this study, it does provide attribute examples for each category. The next sections address the literature references to the categories considered in this study. However, the categories are not presented in any particular order of significance.

Knowledge

This section will address the regulatory requirements espoused in DoD 5000.52-M which are implemented in the Acquisition Professional Development Program (APDP) certification standards and knowledge requirements found in

GS-1102 position descriptions, AFMAN 36-2105, and other studies.

The knowledge requirements in DoD 5000.52 pertaining to contracting officers are divided into three areas. These areas are (1) education, (2) experience, and (3) training. In order to implement these requirements, the Under Secretary Of Defense for Acquisition and Technology (USD(A&T)) has approved standard certification checklists (16). The certifications are divided into three progressive levels, with the completion of each level adding requirements to the previous level. For the purpose of this study, each DAU course's description and objectives will be presented. This will provide the baseline in which to compare the attributes that the contract managers assert to be critical with the attributes that are being emphasized during certification training.

The education requirement of the first level demands either a baccalaureate degree, including at least twenty-four semester hours in business-related courses, or a minimum of ten years of experience as 1 Oct 91. For individuals entering contracting after 1 Oct 91, the experience requirement is one year in the field. The training requirement involves the successful completion of CON 101 (Fundamentals of Contracting) and CON 104

(Fundamentals of Contract Pricing) (16). As previously stated, each course's description and objectives will be presented. The CON 101, Fundamentals of Contracting, syllabus states the following:

Description

Fundamentals of Contracting is a survey course encompassing the entire contracting process from receipt of a purchase request through contract completion including close-out. Students are introduced to the organization and utilization of the Federal Acquisition Regulation (FAR) and the DoD Supplement to the FAR (DFARS), as well as ethics and basic contract law. Application of the information is reinforced through a series of practical exercises that emphasize commercial practices including simplified acquisition procedures.

Course Objectives. Students who successfully complete this course will be able to:

- Determine contracting need and analyze contracting requirements.
- Plan competition and source selection.
- Draft contract solicitations
- Evaluate offers.
- Negotiate and award contracts
- Plan contract administration.
- Monitor quality of and administer payment for contracts.
- Modify, terminate and close out contracts. (17)

The CON 104, Fundamentals of Contract Pricing, syllabus states the following:

Description

Contract Pricing is designed to provide entry-level contracting personnel with a solid foundation for the practice of price analysis, cost analysis, and negotiation techniques. It is required for Level I certification. This course provides essential fundamentals for the study and practice of price, cost and proposal analysis. It also provides a discussion and demonstration of applicable estimating techniques used to support these analyses. Topics include a review of the contracting environment, use and importance of market research, sources of data for cost and price analysis, application of price-related factors in the determination of

reasonableness, methods for analyzing direct and indirect costs, methods for performing profit analysis, ethics in contract pricing, and a selection of current pricing topics. Various case scenarios and an actual cost analysis are used to illustrate and integrate the various concepts and techniques covered in the course. Individual and group negotiation workshops address the fundamentals of the negotiation process, including essential techniques, strategies, and tactics.

Course Objectives. Students who successfully complete this course will be able to:

- Understand the general environment of contract pricing.
 - Determine the sources and means of acquiring data for cost and price analysis.
 - Analyze direct and indirect costs.
 - Perform a profit analysis, including the appropriate use and application of requirements relative to cost of money.
 - Integrate and apply the various concepts and methods learned to a real-time cost analysis in the form of an integrating exercise. Apply selected techniques of cost of money and profit analysis.
 - Apply the essential techniques, strategies, and tactics of the negotiation process, individually, and in small groups.
- (17)

In order to meet the education requirement of the second level, a total of two years working in contracting is mandatory. However, it is preferable that the contracting officers have four years of contracting work experience. Likewise, the training requirement entails the successful completion of CON 202 (Intermediate Contracting), CON 204 (Intermediate Contract Pricing), and CON 210 (Government Contract Law). Additionally, it is desired that the individuals have taken graduate level courses in business administration or procurement (16).

The CON 202, Intermediate Contracting, syllabus states the following:

Description

Intermediate Contracting presents experienced, intermediate-level contracting personnel with an intensive examination of the life cycle phases of contracting, including the pre-award phase of contracting (acquisition planning, solicitation, evaluation and award), and post award contract administration, plus contracting problem analysis and resolution. Case studies, along with group and individual exercises, expose students to contracting problems, and challenge students to apply ethical principles, statutes, regulations, and sound business judgment toward the resolution of contracting problems. Major course topics include acquisition planning, contracting methods with an emphasis on formal source selection and noncommercial acquisitions, and contract administration including contract surveillance and quality assurance, financial management, terminations, and disputes resolution.

Course Objectives. Students who successfully complete this course will be able to:

- Perform acquisition planning to include the analysis of market research and requirements documents and consideration of recurring requirements, Government property, competition, contract type, and contract financing.
- Develop a formal source selection plan.
- Prepare a written formal source selection Request for Proposal for a noncommercial acquisition to include instructions for oral presentations.
- Analyze and evaluate price related and non-price related factors to include performance risk assessment.
- Determine the necessity for discussions, and where necessary, establish competitive range, conduct discussions and process a request for final proposal revisions.
- Prepare an award decision for a competitive negotiated acquisition, conduct debriefings, and take steps to mitigate and/or resolve protests.
- Construct an administration plan and conduct a post-award orientation.
- Implement contract changes via contract modification, and perform Government Property administration.
- Perform contract price or fee adjustments and process various contract payments.
- Perform contract surveillance and quality assurance functions prescribed by the contract to include problem resolution through the application of contract remedies.
- Determine when termination actions are appropriate.
- Analyze and apply the various procedures for resolving disputes and claims. (17)

The CON 204, Intermediate Contract Pricing, syllabus states the following:

Description

Intermediate Contract Pricing both reinforces pricing skills taught in CON 104 and develops skills in price analysis, advanced pre-award pricing decisions, post-award pricing decisions, and general contract pricing issues. The first week of the course is primarily quantitative in nature, focusing on statistical and economic analysis tools. Students are expected to bring to class and be capable of using a calculator with an exponential and reciprocal function. Public domain software is used in applying quantitative theory and in pricing situations. The second week focuses primarily on application of quantitative techniques and advanced contracting concepts. Students are encouraged to call on their unique experiences to provide a basis for discussion and analyses of relevant contract pricing topics, the application of appropriate pricing principles and development of workable solutions.

Course Objectives. Students who successfully complete this course will be able to:

- Use statistical and regression techniques in contract pricing situations.
- Determine when to use either a single or a double moving average.
- Better understand the improvement curve theory.
- Understand the time value of money.
- Develop pre-negotiation positions on proposed indirect cost rates.
- Develop skills in estimating cost-to-complete.
- Develop skills to price equitable adjustments (with exercises related to claims and contract modifications).
- Understand defective pricing, cost realism analysis, contract types, and financial analysis with emphasis on contract financing considerations. (17)

The CON 210, Government Contract Law, syllabus states the following:

Description

Government Contract Law provides an understanding of the impact of Government Contract Law on daily decision making in acquisition. It introduces basic legal principles and sources of contract law as they apply to the Government's acquisition of supplies and services, as well as construction services. Court cases and administrative decisions (General Accounting Office, Boards of Contract Appeals) are discussed with emphasis on how the law affects the Government/contractor

interface and how to avoid legal disputes and maintain ethical business relationships.

Note: CON 210[C] is equivalent to CON 210, with more emphasis on contract law cases pertinent to construction and facilities contracting.

Course Objectives. Students who successfully complete this course will be able to:

- Discriminate between statutory, regulatory, and ethical restrictions applicable to government contracts.
- Analyze and determine the manner in which the various pieces of federal legislation and judicial and administrative decisions impact the formation of government contracts.
- Compare and contrast the different procedures and remedies available to an adversely affected bidder or offeror in the forums available in which to protest a government acquisition.
- Given different types and forms of property, summarize the government's rights in such property and the remedies available to both the government and the contractor resulting from the improper use of such property.
- Distinguish those situations in which the government has properly and improperly obligated federal monies.
- Identify actionable fraud and summarize possible options for remedying such conduct.
- Given different types of contracts, identify and select the government's rights with respect to delivery, and/or any express or implied warranties, and make a determination about when acceptance takes place.
- Given various situations in which a contractor has performed additional work not required by the original contract, (1) differentiate those situations in which the contractor is entitled to an equitable adjustment from those in which the contractor is not, and (2) if so entitled, determine the elements of the equitable adjustment.
- Provided the facts underlying a pending dispute, propose the probable course of the litigation, to include the nature of government employees' participation in such litigation.
- Determine the availability of and the circumstances necessary to terminate a government contract, given different factual situations. (17)

Finally, to meet the education requirement of the third level, a minimum of four years experience is required; however, eight years experience is preferred. The training requirement also involves the successful completion of CON 301 (Executive Contracting) and CON 333 (Management for

Contracting Supervisors). Additionally, it is desirable that the individual possess a Master's degree in Business Administration or Procurement (16).

The CON 301, Executive Contracting, syllabus states the following:

Description

Executive Contracting is a unique forum for senior personnel in the contracting career field to examine a wide range of acquisition issues. Through guest speaker lectures, discussions, workshops, and a Capitol Hill visit to observe Congressional activities, this course provides an intensive executive level view of current issues and events in acquisition and in particular, contracting. Topic areas cover: contracting policy (DAR Council, Office of Procurement Policy (OFPP), current, actual and proposed changes, and changing technologies), external forces (SBA, GAO, DODIG, and legislative statutes), and work environment (contracting innovations, change, ethics, etc.).

Course Objectives: Students who successfully complete this course will be able to:

- Discuss the current, relevant, and projected DoD contracting and management issues as they relate to contracting.
- Identify and discuss the impact on present acquisition and contracting practices of recently established or proposed policies, regulations, directives, or studies.
- Understand how legislation and procurement policy makers operate and work with issues, problems, and the community at large.
- Network with other contracting personnel on various approaches as a means of understanding and, if appropriate, implement ideas presented in the course. (17)

There is an important distinction concerning the individuals who should attend CON 301. Specifically, the syllabus states

This course is REQUIRED at Level III for all contracting personnel who represent their activities and commands in discussing and seeking information regarding policy implementation. This course is required as a refresher every three to five years to keep current in contracting policy. The

senior contracting officer at a smaller activity, if certified at Level II, may also attend. (17)

The CON 333, Management for Contracting Supervisors, syllabus states the following:

Description

The Management for Contracting Supervisors Course is designed for first line supervisors assigned to acquisition/contracting positions within the Federal Government. The course concentrates on numerous Department of Defense management issues formulated within a variety of pre-award and post-award risk management scenarios that challenge acquisition professionals. Participants utilize the integrated case study method, critical incidents, small group interaction and other teaching methods to assess and interpret the variables that affect contract performance and successful mission accomplishment in DoD procurement. Case scenarios are supplemented and reinforced by other techniques and issues that may be raised during the class by students. Participants are encouraged to apply their experience and expertise to the course, and to share/expand their knowledge of acquisition, procurement and management techniques. Participants are also encouraged to exchange visionary ideas on ways to continuously improve mission accomplishment.

Course Objectives. Students who successfully complete this course will be able to:

- Improve understanding of the entire acquisition process from the acquisition planning cycle, through the various steps such as budgeting, lead times, acceptance, payment and close-out. Develop and maintain better communications between all multifunctional team members.
- Develop a process for managing external interactions between contracting personnel and their customers. Processes such as empowerment, value-added time management, and Integrated Product Teaming will be discussed and utilized.
- Understand the competing interests of the various agencies and principal players such as customer requirements, requiring activities, higher headquarters, oversight activities, the contractor, and the general public. Encourage early interaction without giving an advantage to any particular contractor.
- Develop procurement planning skills which will help identify major problems, analyze facts/data, synthesize this information in terms of contracting and management disciplines, develop risk management techniques, create alternate managerial solutions, and justify the appropriate course of action. (17)

Knowledge requirements can also be seen in the position description for civil servant contracting officers and for the military contracting career field in AFMAN 32-2105 Officer Classification. The General Services number for civilians is 1102 and the Air Force Specialty Code for military is 64PX. The civilian employees are required to have an

extensive knowledge of federal, departmental or agency, and local contract laws, regulations and procedures applicable to the acquisition and contract administration of extensive or unique equipment, services, or construction. (3:2)

They are also highly encouraged to earn an advanced academic degree in finance, accounting, mathematics, business administration, management, civil or environmental engineering, operations research, industrial engineering, or other related fields (3:2).

In AFMAN 32-2105, the specialty qualifications for the contracting career field is divided into (1) knowledge, (2) education, (3) training, and (4) experience. The knowledge that the individual must have includes contracting process fundamentals, federal acquisition and contracting directives and publications, budgeting and funding procedures, and contract pricing (6:1). The desired education background embodies an undergraduate degree in business administration or management. The training for a qualified contracting officer encompasses the equivalent of

Level 1 certification previously described. However, the completion of the Master of Science program in Contracting Management at AFIT also fulfills the Level 1 requirements for certification. The experience requirement for the contracting officer is the same as the Level 1 certification (6:1).

The validity of the knowledge requirement has been demonstrated by various studies. One study concluded that for a contracting officer to properly make a decision he must use the knowledge from his training and educational background. The same researcher also used the aforementioned assertion to state that minimum experience and education requirements are needed because they are integral to the professionalism of the acquisition workforce (15:60). Finally, the researcher stated that for a contracting officer to be competent, "he must have a working knowledge of finance, basic business principles, accounting, and marketing (15:57)."

In a more comprehensive study, a researcher found that knowledge is very important for a contracting officer in the Army Acquisition Corps. The study concluded that a "good business sense" was critical in successfully completing duties. This "business sense" was hard to define, but the researcher concluded that it was derived

from technical skill that the interviewees had obtained in a school environment (12:65-66). The interviewees also stated that a diminutive background in business was not enough, the background that they believed was needed was the type obtained from a Master's Degree in Business Administration (12:45). The increased focus on Master's Degrees in Business Administration can also be seen in the 1995 Defense Annual Report where the Defense Acquisition scholarship program added fifteen new scholarships (5). The researcher also found that the understanding of the "legal properties of contracting" is required to perform contracting officer duties (12:44). Furthermore, the same interviewees felt that while the ability to quote the regulations was useful they did believe that a "thorough understanding" was critical (12:55).

Skills

This section will address the skill requirements for a contracting officer as outlined by the USAF Contracting, Manufacturing Civilian Career Program (CMCCP), GS-1102 position description, AFMAN 36-2105, the National Contract Management Association (NCMA), and other studies. The NCMA is the preeminent professional association for the field of contracting. Specifically, it provides education,

training, certification programs, and professional development opportunities for government and civilian contract managers (13).

The CMCCP developed a list of competencies that a top performer should possess. This list of competencies focused primarily on abilities that will be discussed in the following section. Skill was also defined in the context of "technical expertise" as

Top performers possess an unusually high level of expertise in their technical or professional field. This expertise often comes from extensive education and/or experience, but is rooted in interest and curiosity in the subject matter. The technical expertise of top performers is demonstrated in both the depth and breadth of their applied knowledge and skill, and in their ability and interest in sharing knowledge and information to non-experts in a clear and simple manner, without using intimidating technical jargon. (2)

The skill requirements found in the GS-1102 position description address the use of computers and the need for planning expertise. Specifically, the requirement addresses the use of computer software in the contracting pricing and cost estimating fields. The position description also states that it highly desirable for the individual to possess a conceptual understanding of adult education teaching methods in order to effectively plan, present, evaluate, maintain, and improve contracting curriculum (3:2).

The skill requirements in AFMAN 36-2105 are general in nature; nevertheless, it addresses the implementation of some of the areas covered in the knowledge section. Specifically, the individual must be able to plan, organize, direct, and manage in order to obtain the supplies and services the Air Force requires. Also immersed in the individual's responsibilities are the administration and negotiation of contract actions. Finally, the individual is required to possess the skill to establish policy based upon their knowledge of sound business sense and fiscal practices (6:1).

Even though the skill requirements supported in the NCMA's "What skills do you need?" section of their website pertains to contract managers, the assumption can be made that a contracting officer and contract manager are interchangeable if not synonymous. NCMA's definition of technical skills most closely relates to the skill section of this study. The skills stated by NCMA are demonstrated by

competently performing the tasks required, such as preparing and issuing solicitations, preparing bids and proposals, preparing or analyzing procurement requirements and supplier capabilities. (14)

NCMA also states that these skills are developed through degrees, certification classes, and/or specialized programs (14).

The validity of the requirement for certain skills has been demonstrated by various studies. One researcher found that information processing accounted for 36% of contracting officers' tasks. Information processing was characterized as using the Federal Acquisition Regulation (FAR) to determine the correct clauses to insert into the contract (15:51,56). Therefore, the researcher's description of information processing would lead to its categorization as a skill.

In another study, the researcher found many interviewees believed there were many skills important to the success of a contracting officer. The researcher found that negotiation skills were critical to the effectiveness of a contracting officer. In fact, one of the interviewees responded, "if you can't negotiate, you can't be a contracting officer...you are effectively dead in the water" (12:56).

He also found that the respondents concluded that computer skills were absolutely critical. Respondents also stated that without computer skills, tasks such as performing regression, researching FAR clauses, and

creating weighted guidelines would take an prolonged amount of time, thus leading to decreased efficiency (12:54).

Finally, the study found that one hundred percent of the respondents felt that leadership and management skills were important (12:59). The importance of leadership was also advocated in a study concerning the qualification standards required for contracting officers in the Navy's Facility Engineering Command. The study stated that success inherently indicates that leadership has occurred (4:40). Both of the aforementioned findings concerning leadership can be attributed to the basics of the management process. Specifically, most contracting officers have individuals working for them, and as such, they must ensure that they perform in a manner that furthers the interest of the organization (9:10).

Abilities

This section will address the ability requirements for a contracting officer as outlined by in the GS-1102 position description, AFMAN 36-2105, the Contracting, Manufacturing Civilian Career Program (CMCCP), and other studies.

The ability requirements pertaining to the GS-1102 position description address many separate areas that can be categorized as communication abilities. Specifically,

the description requires that the individual possess the ability to present ideas clearly to a group of people. It also requires the individual to write effectively in order to prepare materials for presentation at professional meetings, seminars, and/or publications (3:2).

The requirements in AFMAN 36-2105 address the cognitive abilities of a contracting officer. Specifically, the contracting officer is required to

evaluate offers, including cost or price analysis, contractor responsibility and responsiveness to solicitation, and evaluate other factors (e.g., quality, contractor management and facilities, delivery, etc.). (6:1)

The contracting officer is also expected to analyze the contracting system to successfully develop a comprehensive strategy that improves the contracting process and customer support (6:1).

The CMCCP has developed a list of managerial competencies of top performers by using job analysis surveys, behavioral event interviews, and thematic analysis. Top performers are considered able to achieve better results than average or typical performers (2). The competency model lists ten "distinguishing" attributes that can be considered abilities found in top performers. These attributes are (1) communication and persuasion, (2) conceptual and strategic thinking, (3) entrepreneurial achievement, (4)

initiative, (5) interpersonal awareness, (6) high standards of excellence and efficiency, (7) developing others, (8) flexibility, (9) tenacity, and (10) working through others/group leadership and leadership (2).

The model defines top performer communication and persuasion as

The top performer appreciates that interpersonal communication is the first step in impacting others' thoughts, beliefs, values, and behavior. They also appreciate that the impact often begins with a "rational," or cognitive basis of facts, but involves emotional and perceptual components that are individual and unique. Therefore, the top performer is adept at presenting relevant facts and information to support a position, but they also appeal to the individual's concerns, goals, and style in order to maximize, overall, what is perceived by the other person. Top performers use frequent communication to accomplish their objectives, and tend to be articulate and persuasive as well. (2)

Conceptual and strategic thinking is defined as

Top performers are able to create consistency out of apparently unrelated and random pieces of information or stimuli. They spontaneously go about creating these patterns, which may result in solutions to complex problems, innovation for future directions, or new theories about phenomena they are involved with. They tend to comprehend and see the whole, big picture at once (the "forest") rather than focusing on the pieces or a series of individual items (the "trees"). They often help others to understand the big picture by translating complex, confusing events or information into recognizable themes, theories, outlines, etc. The top performer also can identify when this approach will be useful and when it will not. (2)

Entrepreneurial achievement is defined as

The top performer spontaneously looks for opportunities to make a substantial impact in the way business is done, or in introducing totally new systems, products or ventures into an existing environment. Therefore, success is achieved by turning around a failing organization, or changing people's lives by the implementation of a new idea, product, or system. Frequently these objectives are accomplished by investments in time and resources, taking calculated risks in the process. Often these individuals are not interested in the operational aspects of the venture, once it is successfully underway. (2)

Initiative is defined as

Initiative is demonstrated when the top performer looks ahead and based on judgments about future events, takes action to improve a potential outcome without direction from others. Many times if the situation is not clear, they demonstrate initiative in gathering relevant information for making the optimal decision or action. After events occur, the top performers will always follow-up until every last detail is determined to be to their satisfaction. The outcomes of these initiatives are that there are fewer crises and problems erupting, and greater progress and improvement occurring - appearing almost serendipitously. (2)

Interpersonal Awareness is defined as

The top performer effectively attends to others' verbal and nonverbal communication that enables them to understand unspoken thoughts, concerns, or feelings. These underlying feelings are often at the root of opinions and actions that the top manager may wish to influence; therefore it is important to understand and respond to them accordingly. In addition, the top performer can identify the motives, interests, and priorities of others in order to explain, predict, and/or shaped their behavior, and modify their own. (2)

Standards of excellence and efficiency are defined as

Top performers are energized by doing things that result in observable or measurable improvements in quality or degree of performance. Therefore, they personally seek out ways to improve a process to increase efficiency (if that is an important objective) or improve the quality of the outcome (either substantively or at a detailed level, whichever is important). They tend to set their own high standards by which quality or efficiency is measured, but they enjoy external gauges that help them to assess their performance. At the highest levels, top performers make qualitative changes in improvement more often than improving performance only by degree. Also they will involve others in improvements as well, getting them to raise their standards or do things differently. (2)

Developing others is defined as

Even with many of the conflicting demands placed on a manager's time, the top manager chooses to spend significant time improving the abilities, skills, behavior, and performance of others who are in the appropriate position to receive it. The underlying reasons for this behavior may be the person's view of the other as an important organizational resource requiring others' maximum performance, or their concern about the individual's success and career development

(it is likely to be a combination of the two). Therefore, the top manager frequently and spontaneously takes time to coach others, provide honest feedback and assistance with tasks, and where appropriate, provide career development opportunities, promotions, and transfers to develop their competencies. (2)

Flexibility is defined as

Top performers are open-minded. Although they have confidence in their own ideas, they do not think that their way is the only way, or stubbornly cling to beliefs or ways of doing things. Instead, they remain open to new ideas and approaches, and change their beliefs or behavior if it is justified. Underlying this competency is the awareness of change and openness to it. On a more basic level, then, top performers recognize and adapt to changes in rules, processes, direction, or environment, without negative reactions or consequences. (2)

Tenacity is defined as

The top manager does not become discouraged by rejection, failure or others' disbelief in their goals. They believe, instead, that their goals and objectives are important, worthwhile and attainable. They tend not to take rejection or failure personally, they externalize it; therefore they believe that with enough stamina and/or creativity they can succeed. These beliefs are not necessarily conscious or stated, but they are demonstrated in their continuous and repeated action toward a goal. At the highest levels, they will try many alternative ways of achieving a goal until they succeed. (2)

Working through others/group leadership is defined as

Top performers are effective at managing others in work that requires a team effort or coordinated efforts between a number of separate people. This situation occurs when all individuals have some stake in the outcome of the work, and so, effects the job of a manager, task force leader, team leader or committee chairperson. At the highest levels, the top performer effectively manages the work of others without any formal authority or power over them. This is accomplished by building a team spirit; getting others to realize that they all must work together to accomplish their mutual or individual objectives; getting people involved by obtaining their input; and motivating them to participate and work toward achievement of the goals of the group. (2)

The requirement for certain abilities has also been demonstrated in various other studies. In one study, the researcher found that problem solving/decision making was

the second most frequent occurrence of contracting officers. He also found that the third most frequently occurring behavior is communication (15:51). The researcher referred to verbal, recorded, and electronic medium as the forms of communication (15:62).

In a similar study, the researcher's main discovery as it pertains to abilities involved communication. The researcher found that the individuals interviewed felt communication skills were important to success. They held that good writing and briefing skills were essential. However, writing skills were felt to be much more important than briefing skills, but they both were necessary. It was commonly indicated that because a contracting officer must frequently write contract documentation, justification and approval documents, formal correspondence, and briefing papers on contract status that it is therefore a necessity for a contracting officer to be able to express himself in a concise and unambiguous manner (12:58).

Other Characteristics

This section will address the other characteristics that might contribute to the effectiveness of a contracting officer. By definition, the "other characteristics" are the components that make an effective contracting officer

that could not be categorized as a knowledge, skill, or ability. The characteristic of ethics was found in much of the literature. In AFMAN 36-2105, a contracting officer is vested to perform all duties in an ethical manner (6:1).

In another finding, the author states that the most significant characteristic of a contracting officer's duties is perpetually committing the government in an ethical manner (4:45). In addition, an author in another study states

special attention must be paid to the ethical considerations of the government contracting as there are few, if any, direct comparisons with the less hazy distinctions between right on wrong in the field Army. (12:83)

The rationale for vigilantly holding the government to the ethical extreme is championed in the statement, "the ethical standards of an organization are judged by its actions and the actions of the employees, not by pious statements of intent put out in its name (8:721)."

The characteristic that is a distinguishing competency for top performers in the CMCCP model is "self confidence."

Self-confidence is defined as

Top performers believe they have the capabilities for doing a job as well or better than others; more importantly, they tend to see themselves as able to accomplish most things that they need or want to. This confidence enables top performers in pursuing challenging objectives on their own or through others, often taking calculated personal risks in doing so. Because they possess a "global" confidence about themselves, they are comfortable with looking at themselves honestly - weaknesses as well as strengths, accepting responsibility for mistakes and learning from them. (2)

The aforementioned characteristics are in no way believed to be an all encompassing list of what the researchers might encounter during the data collection phase. As such, the researchers fully expect to receive unique inputs that were not discussed in this section.

Summary

The literature discussed provides a broad perspective of the many different attributes an effective contracting officer should possess. The following table represents the various inputs that comprise each of the categories that this study will use in determining the attributes required for an effective contracting officer. The table on the following page displays a comprehensive list of the characteristics of each of the attribute categories discussed in the Literature Review.

Table 1. Summary of Category Inputs

Knowledge	Skills	Abilities	Other Characteristics
Bachelors Degree	Technical Expertise	Communication	Ethics
DAU Courses	Negotiation	Conceptual	Self-Confidence
Business-Related Courses	Information Processing	Entrepreneurial Achievement	
Master Degree	Leadership	Initiative	
Business Practices	Management	Interpersonal Awareness	
Contract Law	Direction	Standards of Excellence/Efficiency	
Contract Pricing	Organizational	Developing Others	
Experience	Planning	Flexibility	
Regulations	Computer	Tenacity	
		Working through Others	

III. Methodology

Goals

It is the intent of the researchers that this study report the perceived critical attributes of contracting officers from a managerial perspective and compare them with the objective of the formal training currently being provided by DAU and other training providers. It is expected that this project will help to determine whether or not contracting officers are receiving training that reinforces obtainment of those attributes. The research data will be gathered via questionnaires and interviews. Specifically, the initial data will be collected via written questionnaires, with follow-up interviews conducted on an "as required" basis. Subsequently, the researchers will perform a quantitative evaluation of the responses provided by the participants. The results of the quantitative data evaluation will then be returned to the participants for final comments. Essentially, the study involves a two-step questionnaire procedure where participants will be asked to provide initial data and then comment on the extent to which they accept the findings of the aggregate data analysis.

The research team expects this effort will generate solid, logical data that can be qualitatively interpreted and presented in a concise, useful format. Additionally, the researchers envision this study providing the reader with a thorough understanding of the various reasons for opinions among the managerial participants. It follows that while the findings and conclusions of this study are clearly applicable to the specific participants involved, the research team further asserts that the study may provide an accurate generalization of the managerial opinions one might encounter in the field. This assertion is based in part, upon the thorough cross-section of study participants with respect to their varied career experiences, fields of expertise, and current managerial positions.

Ultimately, however, the principal objectives of this endeavor are to provide useful information to individuals making training and hiring decisions by providing them with an understanding of the actual attributes valued by everyday supervisors and senior managers in the contracting career field.

Concurrently, it is anticipated that the study will uncover the extent to which current training is providing

instruction that addresses the attributes deemed critical by managers.

Construct Definitions

The researchers will attempt to ascertain the Knowledge, Skills, Abilities, and Other Characteristics attributes required of effective contracting officers.

For the purposes of this study:

Knowledge is defined as, "the fact or condition of knowing something gained through experience or association (18:665)."

Skills are defined as, "a learned power of doing something competently, or a developed aptitude or ability (18:1104)."

Abilities are defined as competence in doing, natural talent or acquired proficiency (18:44)."

Other Characteristics are defined as

The distinguishable qualities of a contracting officer which do not fall under any of the previously defined categories.

Method Overview

The nature of this study dictates that all statistical data must be derived from objective inputs provided by individuals occupying managerial positions within the Air Force's contracting career field. It follows that, in this specific study, a qualitative approach will be appropriate for interpreting the results of that data. It should be noted that qualitative research is often characterized as "taking an interpretive, naturalistic approach to its subject matter" (11:2). This definition acknowledges the interpretive nature of qualitative research, which will prove valuable in this endeavor. Nonetheless, this phase of the study will not be accomplished until after initial data collection and statistical analysis is completed. In short, the qualitative phase of this study will involve interpreting and evaluating the opinions and beliefs of the participants, and comparing and contrasting them with the current situational realities previously discussed in the literature review.

The research team has elected to conduct this study by following a logically developed combination of quantitative and qualitative design steps that incorporate but do not solely emphasize statistical analysis. It is postulated

that the subjective interpretations required in the qualitative evaluation will be substantially reinforced by the statistical data generated by the questionnaires and the direct comments provided by the participants.

Data Collection Instrument

The questionnaire is comprised of the following 5 questions:

1. Please provide a ranked list of the 5 **knowledge** attributes you consider most critical for a CO to possess.
2. Please provide a ranked list of the 5 **skill** attributes you consider most critical for a CO to possess.
3. Please provide a ranked list of the 5 **ability** attributes you consider most critical for a CO to possess.
4. Please provide a ranked list of the 5 **other characteristics** you consider most critical for a CO to possess.
5. Do you consider the attributes you listed above to vary in importance with respect to the CO's status as a military versus civil servant? If so, please briefly explain.

Research Objectives

The written questionnaires are designed to obtain and record for evaluation, the opinions of the selected managers. The categories examined include the managers'

respective perceptions of the Knowledge, Skills, Abilities, and Other Characteristics required of effective contracting officers. Due to the primary nature of the study - that being the desire to identify the critical attributes of a contracting officer - the initial questions pertaining to the attributes do not directly differentiate between civilian and military contracting officers. It should be noted that a previous study indicated that civil servant and military contracting officers are directly comparable with respect to their duties, responsibilities, and specialty qualifications (15:75). This assertion is further supported in the 1991 USAF Occupational Survey Report for the contracting career field. It definitively indicates that there are a large number of civilians in the field, and they perform the same basic tasks as military contracting officers (1:vii). Therefore, in a separate question, after obtaining the critical attribute requirement data, the research team specifically inquires whether the participants consider the categorical attributes to vary with respect to the contracting officer's military or civilian status. Although previous research indicates that the military and civil servant contracting officers performed the same basic functions, the researchers believe the managers might assert that

significant differences exist with respect to the desired attributes when comparing the two. This theory was based upon informal topical discussions conducted by the researchers among their career field peers, both military and civil servant. These discussions had directly indicated to the team members that experienced contracting personnel, both military and civilian alike, consistently perceived the military contracting officers to be less knowledgeable and efficient in conducting their contracting duties. This perception, it seemed, was often attributed to the relatively short-term nature of the military assignments and significant time the military officers spent working on additional non-contracting tasks. In contrast, however, military contracting officers were often perceived as critical to the acquisition process, in that they offered the intangible assets of leadership, and concurrently ensured that a military focus and perspective remained in the contracting environment.

Finally, it is expected that the collected data will afford the researchers the requisite information needed to accurately analyze the managers' perceived differences in attributes of effective contracting officers with respect to contracting specialty areas.

Participants

Individuals will be selected on the basis of qualifications, availability, and willingness to participate. Participants from a number of worldwide operational, systems, and specialized contracting offices will be sought for the data collection phase of this study. The study candidates will be required to meet certain minimum conditions in order to be qualified to participate. First, the individuals will be required to have managed both military and civil servant contracting officers. Second, each respondent will be required to have supervised or managed contracting officers for a minimum of one year. This condition ensures that the opinions provided by the participants will be based on their supervisory and managerial experiences, as opposed to merely recent personal contracting officer experiences.

Participation will not be limited to immediate supervisors of contracting officers. In fact, it is the research team's supposition that higher-level management inputs, coupled with immediate supervisor level inputs provide a more comprehensive, over-arching perspective of managers' perceived critical contracting officer attributes than merely including immediate supervisors.

Due to the expected large number of participants involved and their assorted locations, direct personal contact has been determined to be impractical with the exception of the few local participants.

Statistical Data Collection and Analysis Procedures

The data collection and analysis process will be conducted in 4 stages. In the first stage, the team will contact representatives from worldwide contracting operations, explain the purpose of the study, and seek assistance in obtaining participant support.

The second stage will consist of electronically disseminating the questionnaires and instructions to the perspective participants. Subjects will be instructed to complete and return the questionnaire 7 days after receipt. On the 8th day an e-mail reminder will be sent to prospective participants who have not returned completed questionnaires, and on the 14th day telephone reminders will be placed to the non-respondents. No additional attempts will be made to obtain completed questionnaires from non-respondents following the telephone reminders.

In the third stage, the research team will enter the completed questionnaire responses into a database. Data entry will consist of a direct transfer of responses from

the completed questionnaires into the database whenever feasible. However, it is expected, in some cases, that the respondents may use synonymous terms to describe the same attributes. In such cases, the research team will categorize synonymous responses under a single attribute description, and seek third-party validation of their categorizations. At this point, initial statistical data analysis will be conducted.

Initially, the statistical data analysis will require a total count of the questionnaire responses. This will simply involve counting the number of times each attribute is listed in the respondents' questionnaires, regardless of ranking, and tracking this data in aggregate form in a database. The same information will then be broken down by specialty area. Subsequently, each item will be weighted and ranked for evaluation and comparison purposes. The weighted rankings will allow meaningful comparisons to be accomplished across the specialty area categories, and will be particularly useful in the event dissimilar numbers of replies are collected from the 3 specialty areas. Ultimately, the resultant weighted responses will be converted into percentages so that direct comparisons can be accomplished across the specialty areas. For each questionnaire, the weighting calculations will be

accomplished using the procedures described in the example that follows:

Assume 50 responses are received from all 3 specialty categories combined. For each questionnaire, the top ranked item under the particular construct will be assigned 5 weighting points. The 2nd ranked item will receive 4 weighting points. The same process will continue through 5th ranked item, which will receive 1 rating point.

At this point, the aggregate rankings are considered.

Under the Knowledge construct, presume Attribute X is ranked 1st = 25 times, 2nd = 5 times, 3rd = 0 times, 4th = 0 times, and 5th = 1 time. This implies that 31 of the respondents ranked Attribute X as one of the top 5 critical attributes under the Knowledge construct, while 19 of the respondents did not rank Attribute X as a top 5 critical attribute under the Knowledge construct. Then, the resultant total weighted points received for Attribute X would be calculated as follows:

$$(25 \times 5) + (5 \times 4) + (0 \times 3) + (0 \times 4) + (1 \times 5) = 150$$

Concurrently, the total weighted points available for each attribute would be calculated by multiplying the number of respondents by the 1st ranked weighting points: $50 \times 5 = 250$. This calculation acknowledges that all 50 of the

participants could have selected Attribute X as the top ranked critical attribute under the Knowledge construct. The total weighted points received by Attribute X (150 pts) will then be divided by the total weighted points available (250 pts) in order to calculate the percentage of the total weighted points received. This percentage ($150/250 = 60\%$) will enable the evaluators to compare the managers' overall perceptions of the relative importance of the individual attribute to the others ranked under that construct. For example, while Attribute X might receive 60% of the total weighted points available, Attribute Y could possibly be ranked 2nd under the Knowledge construct by all 50 participants, resulting in it obtaining 80% of the weighted points available. The bottom line is that the percentages enable the evaluators to consider both the total number of times the individual attributes are selected as a top 5 critical attribute, while concurrently taking into consideration the rankings assigned by the respondents. Furthermore, following completion of the same procedure for each of the specialty areas, the resultant calculations allow the evaluators to compare the degree to which the same attribute is valued across specialty areas. For example, while Attribute X may receive 72% of the total weighted points available under the operational area, it

may only receive 48% of the total weighted points available under the systems contracting area. This would indicate to the evaluators that within the operational area, managers generally perceive Attribute X to be a relatively more important Knowledge attribute than do the managers in the systems area.

The fourth stage will follow the initial data analysis. In this stage, the participants will be provided with the top 5 total weighted responses in aggregate form and broken down by specialty area. They will be asked to provide comments in support of or arguments against the statistical results. Subjects will be given 3 days to provide their final comments.

Qualitative Data Analysis Procedures

In order to conduct the qualitative data analysis, the team will compile, compare, and contrast its statistical data and final comments with the DAU course descriptions and objectives previously discussed in the literature review. Additionally, for each of the constructs, the researchers will summarize and discuss the pertinent comments which apply to the top 5 critical attributes with respect to the total weighted frequency distribution, as well as for each of the specialty area weighted frequency

distributions. In the event multiple attributes receive the same weighted values, the attribute which has the highest count will be assigned the higher ranked position.

Following the evaluations of the constructs, the researchers considered the comments provided with respect to the 5th topic addressed in the questionnaire.

Fundamentally, the researchers attempted to ascertain whether or not a trend existed with respect to the participants' opinions concerning the equal applicability of the constructs previously discussed to military and civilian contracting officers.

Finally, in the fourth stage, the additional comments provided in response to the original statistical results were compiled and incorporated. During this stage, the team sought evidence that individual participants might have changed their opinions as a result of the weighted statistical data. Essentially, the team was expecting to find that some participants might have recognized the importance of attributes they had initially not considered or considered less important.

IV. Data Description and Analysis

Introduction

Initially, the researchers contacted representatives from a combination of 12 worldwide operational, systems, and specialized contracting offices. The unit representatives provided a tentative combined list of 43 possible participants. At the end, 28 of the anticipated participants completed and returned the questionnaire. The prospective participants were comprised of 10 managers from the operational field, 10 from the central systems field, and 8 from specialized contracting. With the exception of 1 participant, each respondent answered the questionnaire in a clear and concise manner. This individual's questionnaire was discarded for statistical analysis purposes; however, the comments provided were incorporated in the qualitative analysis of the topic.

Data Presentation

The data presentation is displayed in a format that clearly delineates responses for knowledge, skills, abilities, and other characteristics in total and by each respective contracting specialty area. In the following

sections, the data will be statistically presented in narrative and tabular formats. Each attribute will be discussed in sequence, however, when the same attribute occurs in a subsequent section, it will merely be represented in a table. No additional discussion will be presented. The attribute(s) which have not been discussed previously will be identified by an asterisk (*) located next to attribute's ranking in the appropriate table. A description of the significant comments pertaining to that attribute will then be presented immediately following the tabular presentations.

Initially, all responses were compiled into a spreadsheet. Each of the inputs included a number, which represented the respondent (for referencing the original completed questionnaire), and headings that specified the participants' military/civilian status, as well as their contracting specialty areas.

The database was broken down into Knowledge, Skills, Abilities, and Other Characteristics sections. Each section contained 5 cells for the responses. The responses were input in the ranked order provided by the participants. They were then weighted according to the rankings. Attributes ranked first received 5 weighting points. Those ranked second received 4 weighting points,

and so on, down to the fifth ranked inputs that received 1 point. Following the initial response weighting, all data was normalized based upon the maximum number of weighted points available within the category, so that the attributes could be displayed as having received a specific percentage of the available. Comments provided on the questionnaire were not incorporated into the database. Instead, they were referenced directly from the questionnaires.

Finally, the database included the respondents opinions with regard to whether or not the managers perceived the attributes to apply equally to military and civilian contracting officers. However, the comments in this area were not input into the database. Instead, they were again referenced directly from the questionnaires.

Data Results

TABLES 2 - 5 PROVIDE RANKED LISTS OF THE 5 CONTRACTING OFFICER KNOWLEDGE ATTRIBUTES CONSIDERED MOST CRITICAL BY MANAGEMENT.

Table 2. Aggregate Results - Knowledge Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Regulations	23	71%	135
2	Business Practices	16	42%	135
3	Technical	15	41%	135
4	Law	9	21%	135
5	Bachelors	9	19%	135

1. Regulations

Narrative comments addressed the need for contracting officers to have an understanding of the Federal Acquisition Regulation (FAR) and its supplements. The degree of depth required in regulation knowledge varies in opinion from familiarization with the documents to having a thorough understanding. The interviews revealed that some of the managers valued the attribute for different reasons. One stated, "Knowing which regulations apply keeps you out of trouble. If you know the basics of the regulations, you will keep yourself out of trouble."

During the review of DAU courses required for certification, the researchers discovered that CON 101, CON 202, and CON 210 address regulations in the course description and/or course objectives. The CON 101 course description states that during the twenty class days, students will be

introduced to the organization and utilization of the Federal Acquisition Regulation (FAR) and the DoD Supplement to the FAR (DFARS)...reinforced through a series of practical exercises that emphasize commercial practices including simplified acquisition procedures. (17)

The CON 202 course description specifies that case studies and other exercises will be provided which are intended to "challenge" students to use statutes, regulations, and other principles while devising a solution

to a contracting problem (17). Finally, CON 210 addresses the instruction of regulations in the course objectives, which states, "students who successfully complete this course will be able to discriminate between statutory, regulatory, and ethical restrictions applicable to government contracts (17)."

2. Business Practices

The second most critical knowledge attribute identified by the respondents was a knowledge of standard business practices. One participant stated that such knowledge should be obtained through "degree programs, academic courses, or training seminars." Another respondent noted that individuals should have a "basic business knowledge in production, accounting, marketing, finance, etc." A third critically observed that "when a contracting officer understands the standard business practices of the contractors he's negotiating with, he won't make the mistake of wasting time fighting the inevitable." This manager explained that he believed contracting officers who don't understand standard business practices often spend excessive amounts of time trying to "nickel-and-dime" contractors when they should really concentrate on the overall cost/price objectives. He went on to assert that

contracting officers who are new to the business often worry too much about how the contractor may allocate overhead for example, even though their method may be consistent with the industry standard. Another argued that "you cannot possibly do an effective job without knowing where they (contractors) are coming from." Additionally, another added, "We must always take into account that they are profit oriented, and we are cost reduction oriented. If we understand their motivations from the outset, we will work more effectively and efficiently."

During the review of DAU courses required for certification, the researchers found that only one course addressed the instruction of business practices in the course descriptions or course objectives. In CON 101, the course description stated, "the information is reinforced through a series of practical exercises that emphasize commercial practices including simplified acquisition procedures (17)."

The information provided in the course description only briefly intimates that business practices will be trained by DAU. It is the research team's assertion that DAU may accept that the standard certification requirements ensure every individual has been introduced to business practices. Specifically, the

requirements for level 1 certification identifies 24 semester hours in business related courses as one possibility for meeting the education requirement.

Alternatively, the contracting officer may possess a baccalaureate degree in any discipline in order to meet the requirement (16). Thus, it appears that little formal instruction pertaining to business practices is being provided by DAU. The lack of business practice instruction presents a significant disconnect between the knowledge attributes contract managers in the field perceive to be critical versus the current DAU curriculum. However, one might conclude that the contracting officer meeting the certification requirements is acquiring the attribute.

3. Technical

The third critical knowledge attribute was technical knowledge. Comments indicated that the participants believed the contracting officers must have a basic understanding of the technical processes involved in the areas in which they specialize. For example, inputs indicated that those who espoused this attribute believe that the contracting officers must understand the specific contracting processes and procedures associated with the

type of contracting work they are assigned. For instance, those working construction projects or medical projects must have an adequate understanding of the special contracting and administrative requirements related to acquiring supplies or services in the particular field. This point was particularly emphasized by one of the specialized contracting managers. One manager stated that "technical knowledge is obviously required whenever the contracting officer is reviewing other people's work." Likewise, one participant stated that while the contracting officer must be aware of general technical job requirements, it is more important that he be able to acquire under any contracting authority. Additionally, he asserted, "the contracting officer should have in-depth understanding of interest rates, time-value-of-money, and total cycle costs."

The contract manager responses relating to a need for technical knowledge encompassed two areas of thought. The areas were (1) a knowledge of the procedures and processes of the current contracting specialty area and (2) the knowledge of the specific field in which the contracting officer is procuring (i.e. construction, satellites, etc.). During the review of DAU courses required for certification, the researchers discovered that no specific

course addressed the procedures and processes for a specific contracting specialty area. However, CON 101 and CON 202 mentioned an overarching technical instruction that would apply throughout all contracting specialty areas.

The course objectives for CON 101 advocated that all

students successfully completing the course will be able to plan competition and source selection, draft contract solicitations, evaluate offers, plan contract administration, modify, terminate, and close out contracts. (17)

In addition, the description for CON 202 stated that the course introduces students

with an intensive examination of life cycle phases of contracting, including pre-award phase of contracting (acquisition planning, solicitation, evaluation, and award), post award contract administration. (17)

Both CON 101 and CON 202 do not specifically address the procedures and processes of each contracting specialty area. However, the researchers conclude that the DAU courses do provide a substantial amount of instruction for the basis on which all contracting officers must perform.

The second technical area identified by contracting managers involved the knowledge of the specific field in which the contracting officer is procuring (i.e. construction, satellites, etc.). During the review of the required DAU certification courses, the researchers found that none of the aforementioned provided the second area of technical training. However, DAU does offer courses that

are not required for certification that specifically address distinct fields of operation. The titles of the courses are self-explanatory. The courses are CON 232, Overhead Management of Defense Contracts; CON 234, Contingency Contracting; CON 237, Simplified Acquisition Procedures; CON 241, Information Technology Contracting; CON 243, Architect-Engineer Contracting; and CON 244, Construction Contracting. These courses indicate that DAU provides technical field-specific training.

4. Law

The fourth ranked critical knowledge attribute advocated by the participants was an understanding of the applicable laws governing contracting. The affirming respondents believed that the contracting officers must have sufficient knowledge of the laws governing contracting in order to avoid taking actions that might lead to future litigation against other government representatives or themselves. Additionally, some participants believed that legal training provided through DAU was essential to ensure that the contracting officer would be prepared when inevitable legal issues and proceedings occurred. One manager stated, "Knowledge of the law goes hand in hand with knowledge of the regulations. It's important to know which laws will

ultimately be enforced. Twenty-five percent of the laws that apply to us are never enforced, but there are another twenty-five percent that are always enforced. Then, there's the other 50% that are in the gray. Bottom line, as the contracting officer, you need to be aware that seventy-five percent can get you in trouble." Another participant stated that knowledge of the law is important because higher-ranking officials, who don't know the laws, may inadvertently make commitments to higher officials that would ultimately involve illegal actions. For instance, the individual alluded to an operational situation where a civil engineer assures the base commander that he will take actions to ensure a contractor takes specific actions. In this case, the contracting officer's knowledge of the basic laws will allow him to keep the base commander out of legal trouble by informing him of the potential legal ramifications that may come as a result of the engineer overstepping his legal authority.

CON 210 is a course specifically designed for the instruction of government contract law. In addition to CON 210, CON 101 presents some "basic contract law" (17). While CON 101 presents a basic introduction, it is the only discussion of contract law in the Level 1 courses. However, the inclusion of a law specific course for Level 2

certification identifies the degree of importance that DAU places on a contracting officer's knowledge of the law.

5. Bachelors Degree

The fifth critical knowledge attribute noted was a bachelors degree. Several different opinions were offered concerning the need for a degree. One manager believed that it was critical to earn a degree that required the individual write extensively, while several others asserted that the degree indicated that the recipient was trainable. One participant commented that he believed the bachelors degree proved that the contracting officer had some definable breadth of knowledge. He added, "A contracting officer needs that bachelors degree, because he or she is working in a white collar environment. You have to realize that most of the contractors' negotiators are going to have degrees, and in that environment the CO needs the respect factor that comes from having a degree." Additionally, he noted that he did not see a particular field of study as being preferred, but simply argued that a degree was essential. Another manager concurred with the suggestion that a degree was valuable, but argued that experience was more critical than the degree in gaining respect from negotiation opponents.

The emphasis on a bachelors degree can be seen as a requirement to fulfill Level 1 certification. Nevertheless, a bachelors degree is only one way to fulfill the "education" requirement of the certification levels. For certification consideration, a bachelors degree is considered to be equivalent to 24 semester hours in business related fields. Likewise the requirement to acquire attribute is "grandfathered" for contracting officers with "at least 10 years of experience as of 1 Oct 91" (16).

Table 3. Operational Contracting – Knowledge Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Regulations	9	82%	50
2	Technical	6	46%	50
3	Business Practices	6	42%	50
4*	Acq System	4	28%	50
5	Bachelors	5	24%	50

4. Acquisition System

The managers believed that an understanding of the overall acquisition system was valuable, in that, as stated by one manager, "contracting is only one cog in the wheel." A number of interviewees echoed that one must understand where contracting fits into the system in order to understand the true responsibilities and authorities that are inherent with a contracting officer warrant. Another

added, "A knowledge of the acquisition system is imperative. The contracting officer makes decisions that affect other players in the system, so, he has to have an overall understanding how his decisions might impact the acquisition timeline." Essentially, the inputs seemed to address the contracting officer's responsibility to consider the impacts his or her decisions may have on other parties involved in the process, and on the process as a whole.

During the review of DAU courses required for certification, the research indicated that no current DAU course specifically focuses on the acquisition system as defined by the contracting managers. The contracting courses offered by DAU are field-specific, and therefore, may not address in detail some the macro-type attributes, like knowledge of the entire acquisition system.

Table 4. Specialized Contracting – Knowledge Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Regulations	6	60%	40
2	Business Practices	5	48%	40
3	Bachelors	3	28%	40
4	Technical	2	25%	40
5*	Experience	2	20%	40

5. Experience

This attribute was selected because, in the words of one interviewee, "certain knowledge can only be gained through experience. You can read about it all, but until you do it, you won't truly know how it works in the real world." This statement indicates that individual's position that while the coursework is useful, the on-the-job training is probably more beneficial to the member. As discussed previously, a few participants directly commented that experience was more important to a contracting officer's success than a bachelors degree. Although the statistics seemed to indicate that overall, the bachelors degree was considered to be a more important attribute, the direct comments seemed to indicate that those who considered experience to be a more critical attribute, felt so strongly.

Each respective certification level addressed necessity of experience by requiring a minimum time requirement before an individual is eligible for certification at the respective level. For Level 1, an individual must have a minimum of one year of contracting experience. For Level 2, a minimum of two years contracting experience is required. Finally, for Level 3, an individual must have at least four years contracting experience. These rigid time

requirements indicate that DAU understands the significance of experience and will withhold certification until the time requirements are met, even though an individual has successfully completed the mandatory course work.

Table 5. Systems Contracting – Knowledge Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Regulations	8	69%	45
2	Technical	7	51%	45
3	Business Practices	5	38%	45
4	Law	3	31%	45
5*	Cost/Price Analysis	4	20%	45

5. Cost/Price Analysis

Inputs under this category indicated that the managers believed that contracting officers should have the ability to take rates, burdens, and material costs and use them to develop pricing objectives and profit margins without necessarily depending on a price analyst. Furthermore, some stated that contracting officers should be able to use their pricing skills to conduct effective proposal risk analyses. In fact, one party stated that an understanding of cost/price analysis would become even more critical in the future as the manpower decreases. He expects the contracting officer of the future will have no choice but to become well versed in cost/price analysis, because, as he sees it, fewer and fewer departing price analysts will be replaced in the future.

CON 104 and CON 204 are specifically designed to instruct students on the fundamental and intermediate aspects of cost/price analysis. DAU convincingly espouses that cost/price analysis is critical to the effectiveness of a contracting officer. Moreover, cost/price analysis is the only subject matter that is emphasized at elementary and intermediate course levels.

TABLES 6 - 9 PROVIDE RANKED LISTS OF THE 5 CONTRACTING OFFICER SKILL ATTRIBUTES CONSIDERED MOST CRITICAL BY MANAGEMENT.

Table 6. Aggregate Results - Skills Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Negotiation	16	53%	135
2	Computer Literate	18	49%	135
3	Organized	15	36%	135
4	Business Acumen	6	17%	135
5	Planning	5	13%	135

1. Negotiation

Comments addressed the need for contracting officers to be skilled in negotiation techniques. One participant stated that the essence of negotiation is the skill of "getting the project done at a fair and reasonable price...understanding give and takes." Another respondent noted that a contracting officer must be able to find compromises between the "contractor and government, as well between different functionals in the government. The

negotiations skills have to be applied internally and externally." Another participant stated, "the contracting officer has to be able to apply the negotiation tricks. If a contractor thinks that you are a skilled negotiator, they won't attempt to trick you with simple techniques like splitting offers, using stalling tactics, or threatening to take it up the chain of command." This manager's somewhat cynical reasoning for desiring superior negotiation skills seemed to be the shared by few participants. On the contrary, most seemed to believe that, applied effectively, contracting officer negotiation skills would potentially enhance the relationships between the government and the contractors.

During the review of DAU courses required for certification, the researchers discovered that CON 104 describes negotiation in the course description and the course objectives. The CON 104 course description states that during the 14 class days, students will be provided a "solid foundation for the practice of price analysis, cost analysis, and negotiation techniques" (17). The course description also specifies that "individual and group negotiation workshops address the fundamentals of the negotiation process, including essential techniques, strategies, and tactics" (17).

In addition to the course description, the course objectives advocated that upon successfully completing the course, students should be able to effectively negotiate as individuals or within small groups (17).

2. Computer Literate

The second critical skill attribute identified by the respondents was an aptitude to skillfully operate computers. Comments indicated that the participants generally believed in order to accomplish their tasks and stay current with the regulations, contracting officers must be proficient with computers. Many respondents mentioned the need to use the Internet and the Defense Acquisition Deskbook program to successfully complete tasks. One participant stated "a lot of the guidance we get now is on the web." Another asserted that "being skilled with a computer isn't going to make you succeed, but not being able to work with one can make you fail. In today's environment, speedy information flow is important, and a computer allows you get the information out quickly and spend time working the real issues." Likewise, one manager said, "A contracting officer needs to be able to open, read, and create documents. He just needs to have a basic working knowledge of the systems. He's doesn't need

to understand the programming." Basically, the managers seemed to concur that while computer expertise is not requisite, a contracting officer must be able to function in the computer age.

There are no DAU courses that specifically instruct individuals on the use of computers. However, CON 204 requires the students to use "public domain software in applying quantitative theory and in pricing situations" (17). The researchers found no prerequisites that required individuals attending CON 204 to be familiar with computer usage. It is therefore assumed that the instructors for CON 204 must spend additional time tutoring students that are unfamiliar with the operation of the computer.

3. Organizational

The third critical skill attribute was organizational skills. Many respondents simply noted that organizational skills were obviously required. However, one participant stated that due to the intensity of the workload, organizational skills are required to "effectively prioritize workload." Another respondent noted that organizational skills are essential to "taking care of many things at one time." Yet another stated that "being organized keeps the CO from wasting time." He continued,

"A CO should keep a book of current action items, and always be aware of who's doing what, and when. Although I never used one, I think a Franklin planner is great."

Correspondingly, another manager observed that a contracting officer must be an "administrative genius." He stated that "Felix Unger would have been an outstanding contracting officer. But, it would have taken Oscar a lot longer to get the job done." Overall, little dissention existed with respect to the benefits of a contracting possessing organization skills.

There are no DAU courses that address organizational skills as defined by the respondents.

4. Business Acumen

The fifth ranked critical skill attribute asserted by the participants was an individual's business acumen. It was clear that business acumen incorporated many different elements among the respondents. Those who commented seemed to agree that business acumen is the employment of an individual's business knowledge coupled with sound judgement and common sense. One manager commented that a contracting officer should be "shrewd." He added that possessing strong business acumen ensures the contracting officer "makes accurate decisions quickly, using the

information he or she is given." However, for purposes of differentiation, the previous inputs espousing a knowledge of business practices, simply considered it to entail a contracting officer's understanding of the strategic and tactical techniques employed by the industry. Essentially, the possession of business acumen assumes the individual already holds some knowledge of business practices.

The researchers found that CON 104 and CON 202 alluded to the instruction/use of business acumen in the respective course descriptions. CON 104 stated that the topics of case studies and group exercises would be a "review of the contracting environment and the use and importance of market research" (17). These aforementioned topics directly relate to an individual's ability to obtain the type of business acumen that the contracting managers described. Business acumen was addressed in the CON 202 course description more specifically. It stated that students would be required to use "sound business sense" coupled with other skills when working toward a solution on group and individual case studies (17).

5. Planning

The fifth ranked attribute under the operational contracting area was planning. The respondents indicated

that contracting officers must properly plan to meet suspenses, organize workloads, and mitigate inevitable problems inherent to contracting. Additionally, they believed that without planning a contracting officer could not successfully prioritize and execute their assigned tasks. One manager asserted that planning is critical because "the schedule is important to the higher-ups. One needs to ascertain which activities must be completed to meet the final schedule, and to do so, he must have a realistic idea of how long it takes to complete each step."

Planning, in sense of workload planning as defined by contracting managers, is not formally addressed as part of the DAU certification curriculum. However, the CON 202 does address the acquisition planning to include the source selection plan, administrative plan, and contract surveillance plan (17).

Table 7. Operational Contracting – Skills Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Negotiation	7	66%	50
2	Computer Literate	7	50%	50
3	Organized	4	26%	50
4	Business Acumen	3	24%	50
5	Planning	3	20%	50

The top 5 critical skill attributes recognized by the operational contracting specialty area managers were discussed previously.

Table 8. Specialized Contracting – Skills Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Computer Literate	6	58%	40
2	Negotiation	4	40%	40
3	Organized	5	30%	40
4	Business Acumen	2	18%	40
5	Planning	2	18%	40

The top 5 critical skill attributes recognized by the specialized contracting specialty area managers were discussed previously.

Table 9. Systems Contracting – Skills Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Organized	6	53%	45
2	Negotiation	5	47%	45
3	Computer Literate	5	40%	45
4	Management	3	27%	45
5*	Politically Astute	3	20%	45

5. Politically Astute

The fifth critical skill attribute noted was political astuteness. Several different examples were given, but all revolved around the idea that internal and external politics are involved in accomplishing the task. Participants felt that in order to perform effectively they

must "know who and where to find answers." Specifically, one respondent answered that thorough "cooperation and the willingness to help" along with the effective use of the chain-of-command is essential to contracting officer success. Another observed that the contracting officer "must know where the money comes from." He added, "a sense of the political relationships is probably more important in the systems world. And, you also have to understand that we, in contracting, aren't steering the ship. We are just told to make it happen, so we need to have the right people on our side." Likewise, another participant commented, "Politics seems to be everything. You must have the support of the powerful people. As the contracting officer, you must be supported by management, because the contractor will inevitably complain about you to your managers when the negotiations bog down." Basically, the responses and comments suggest that the managers acknowledge that skillful maneuvering within the political system can only help the contracting officer expedite complex acquisitions.

There are no DAU courses that address political astuteness as defined by the respondents.

TABLES 10 - 13 PROVIDE RANKED LISTS OF THE 5 CONTRACTING OFFICER ABILITY ATTRIBUTES CONSIDERED MOST CRITICAL BY MANAGEMENT.

Table 10. Aggregate Results - Abilities Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Communication	22	61%	135
2	Analytical	13	36%	135
3	Interpersonal	14	30%	135
4	Leadership	13	27%	135
5	Flexible	13	26%	135

1. Communication

The respondents asserted that successful contracting officers must have the ability to communicate effectively both orally and in writing. The nature of the profession dictates that the individuals must be able to provide clear direction to subordinates and contractors. One manager observed that "you can be a technical genius, but if you express your position to others, you will be ignored. A contracting officer must understand the need for information to flow...he needs to show some salesmanship." Another participant concurred by saying, "It's not just what you say, it's how you say it. People need to understand what you need and why, as well as the urgency of the need." In addition, many others noted that the contracting officer must have the ability to write succinctly and clearly in order to ensure that contract

documentation provides clear historical recall of completed acquisition actions.

None of the DAU course descriptions overtly state that improving communication abilities is a specific course objective. However, every course does provide individual and group exercises that afford the students with opportunities to publicly express themselves in both written and oral formats.

2. Analytical

The participants collectively asserted that this ability encompassed the contracting officer's expertise in gathering, organizing, and objectively evaluating information and placing it into a useful format for decision making. The participants further asserted that this attribute entailed the ability to separate pertinent data from extraneous information. One subject specifically stated that analytical abilities were required to effectively develop "pricing positions for negotiations." Another added, "Some issues are so complex that they require the ability to understand the effects of current action on a future government deal. If the CO doesn't analyze situations accurately, he might establish a bad precedent for future dealings." Moreover, one manager

noted that "it is important for the contracting officer to be able to translate information. For example, some tend to dwell on how much something costs, without looking at the true value of the item. It's the CO's responsibility to analyze all the information, not just the cost, to make a value determination. It's really an art form."

During the review of DAU courses required for certification, the researchers found that CON 104, CON 202, and CON 210 addressed the instruction of analytical abilities in the course objectives. Specifically, the course objectives for CON 104 stated that

students who successfully completed this course will be able to: analyze direct and indirect costs, perform a profit analysis- including the appropriate use and application of requirements relative to cost of money, and integrate and apply the various concepts and methods learned to a real-time cost analysis in the form of an integrating exercise. (17)

The course objectives for CON 202 also mentioned analytical abilities. During the 19 class days, students would be required to "analyze and evaluate price related and non-price factors to include performance risk assessment" (17). Additionally, the CON 210 course objectives frequently indicated that analytical abilities would be utilized throughout the course. Specifically, the course objectives stated that

students who successfully completed the course will be able to: discriminate between statutory, regulatory, and ethical

restrictions applicable to government contracts, Analyze and determine the manner in which the various pieces of federal legislation and judicial and administrative decisions impact the formation of government contracts, given different types of contracts, identify and select the government's rights with respect to delivery, and/or any express or implied warranties, Compare and contrast the different procedures and remedies available to an adversely affected bidder or offeror in the forums available in which to protest a government acquisition and make a determination about when acceptance takes place, distinguish those situations in which the government has properly and improperly obligated monies, and given various situations in which a contractor has performed additional work not required by the original contract, (1) differentiate those situations in which the contractor is entitled to an equitable adjustment from those in which the contractor is not, and (2) if so entitled, determine the elements of the equitable adjustment. (17)

3. Interpersonal

This ability attribute seems to closely parallel the team-player ability, in that it implies the capacity to get along with one's co-workers. However, the initial comments suggest that the managers support the idea that interpersonal skills also involve utilizing the strong points of one's personality to affect the decisions and opinions of superiors and co-workers. In addition, one manager specifically stated that interpersonal skills include the ability to put personal feelings about another individual aside in order to make the most appropriate decisions. Another participant stated that a successful contracting officer must have "compassion for people who you work with." He added, "People don't care how much you know, until they know how much you care." Correspondingly,

one respondent stated, "When negotiating, you need to show empathy for those who are giving ground to you. You need to be able to put yourself in their shoes." Overall, the inputs indicate that the managers recognized that the interpersonal awareness extends to co-workers, subordinates, and contractor employees.

DAU does not offer any courses that specifically teach interpersonal abilities. However, the group exercises that must be performed in all the courses directly cultivate individual's interpersonal abilities.

4. Leadership

The participants generally described leadership as the ability to take charge of contracting situations when required. One member stated that an effective contracting officer "leads and makes others around him perform better." Another suggested, "Leadership is a must for a CO. It's really the most important characteristic on the list. When the really tough situations come up, the leader handles it. He effectively delegates the easy to hard cases, but handles the really tough situations himself." Furthermore, one manager indicated, "The contracting officer is an overseer. He or she is like the orchestra director, and is ultimately held responsible for the actions of others. So,

he has to exude leadership to get the functions to work together."

None of the courses address the instruction of leadership in course descriptions or objectives. Similar to interpersonal abilities, a student would likely have the opportunity to employ some degree of leadership through the group exercises. The USAF also provides schools such as Squadron Officer School and Air War College that offer leadership learning opportunities to both military and civilian personnel.

5. Flexible

The managers supporting this attribute believed that contracting officers must be willing to consider alternative solutions to the problems they encountered. One expert stated that the contracting officers must be willing to accept "paradigm shifts" in order to accomplish tasks when more efficient solutions exist. Likewise, one subject commented that "in this business you get a lot of advice, sometimes it's recommended and sometimes it's highly recommended. A good CO listens to other ideas." Yet another went on to assert that a contracting officer must be able "to adjust work operations and program objectives to meet emergencies, changing programs, or

production requirements within available resources, and with minimum sacrifice of quality."

There are no DAU courses that address flexibility as defined by the respondents.

Table 11. Operational Contracting – Abilities Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Communication	8	66%	50
2	Flexible	7	40%	50
3	Analytical	5	34%	50
4	Leadership	4	34%	50
5	Interpersonal	5	28%	50

The top 5 critical ability attributes recognized by the operational contracting specialty area managers were discussed previously.

Table 12. Specialized Contracting – Abilities Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Communication	7	60%	40
2	Analytical	4	40%	40
3	Flexible	5	33%	40
4*	Decisive	3	33%	40
5	Leadership	5	28%	40

4. Decisive

The managers' inputs connoted a belief that contracting officers must have the ability to make decisions based upon the information they possessed. One subject stated the need for the contracting officer to make decisions with "imperfect knowledge" in order to avoid unnecessarily

delaying procurements. Another added, "The contracting officer, by nature, is responsible for the decisions he makes. He's got to have the ability to process information and make a rational decision. If he can't make the decisions, he shouldn't be the CO." All in all, the respondents appeared to concur that the contracting officer is solely responsible for the decisions he or she makes.

There are no DAU courses that teach an individual how to be decisive. However, the course exercises may provide the students with scenarios that require them to be decisive.

Table 13. Systems Contracting – Abilities Attribute

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Communication	7	58%	45
2	Interpersonal	6	33%	45
3	Analytical	3	27%	45
4*	Team-Player	4	27%	45
5	Leadership	4	22%	45

4. Team-Player

For the most part, the participants noted that the ability to act as a team member was critical to organizational success, and therefore, a desirable attribute of contracting officers. One interviewee stated that the team concept was "an important factor in establishing relationships among the functional specialists and ensuring that contract requirements were understood by

all players." Another manager noted that the contracting officer has to "put aside personal differences with other team members, and be sensitive to other's needs too." Although the majority seemed support this view, one manager interestingly curtailed his enthusiasm by stating, "I believe the CO should be a team player, but he needs to be a leader even more, and a leader, like a coach, is not one of the players." Likewise, another participant supported the team-player attribute provided the contracting officer knows when to act as a team-player, but also knows when to stand firm on specific decisions.

DAU offers no courses that instruct team-player attributes. Again, as mentioned throughout the ability attribute section, the students have the potential to "practice" their team-player abilities during group exercises.

TABLES 14 - 17 PROVIDE RANKED LISTS OF THE 5 CONTRACTING OFFICER OTHER CHARACTERISTIC ATTRIBUTES CONSIDERED MOST CRITICAL BY MANAGEMENT.

Table 14. Aggregate Results - Other Characteristics

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Ethical	12	40%	135
2	Confident	10	30%	135
3	Accountable	6	18%	135
4	Even-Tempered	7	17%	135
5	Customer Oriented	4	12%	135

1. Ethical

The participants consistently believed that an effective contracting officer lives to a higher ethical standard.

One member stated that "Ethical values are inherent, they're not learned in a mandatory government workshop."

Another stated, "If you're not honest, you shouldn't have a warrant and I certainly don't want you giving others

guidance." The sentiments in this category seemed very

consistent. Yet another suggested, "Once integrity is lost, effectiveness is gone. This applies to relationships

with co-workers and contractors. Lying is not part of

negotiating." Along the same lines, one manager described

integrity as being "paramount." He added, "You can tell if

someone is ethical early on. It's part of who they are,

and that's why those straight arrow training programs are

insulting." The inputs seemed to consistently indicate

that the managers believed that ethical/moral

characteristics were important inherent characteristics.

There were no comments to the contrary.

During the review of DAU courses, the researchers discovered that CON 101, CON 104, CON 202, and CON 210 address ethics in the course descriptions. CON 101 and CON 104 mentioned their respective instruction of ethics as an introduction. However, CON 202 and 210

employ the instruction of ethics by application. The course description for CON 202 states, "case studies, along with group exercises, expose students to contracting problems, and challenge students to apply ethical principles (17)."

Furthermore, CON 210's description expresses the instruction of ethics in

Court cases and administrative decisions (General Accounting Office, Boards of Contract Appeals) with emphasis on how the law affects the Government/contractor interface and how to avoid legal disputes and maintain ethical business relationships. (17)

2. Confident

Many managers argued that successful contracting officers possessed confidence in their abilities and knowledge. One member stated that a contracting officer must show a "no fear attitude" and manage risk instead of avoiding it. Several others supported the notion that a contracting officer must maintain a general sense of self-confidence in order to perform effectively. One expert stated, "If you don't give the impression that you can get things done, others aren't going to follow." He added, "The complexity of contracting requires you to accept some failures. There is so much information to process, and so many decisions to make that you can't lose your confidence over a failure." Overall, the managers agreed that a

successful contracting officer should exude confidence in order to gain the support of others.

There are no DAU courses that address self-confidence as defined by the respondents.

3. Accountable

The experts generally supported the idea that contracting officers must be "willing to own the workload." One manager commented that the contracting officer must be "responsible for his actions and those who work for him when he is the CO in charge." Another stated, "The CO's got to have accountability. In fact, it doesn't matter that he's at the bottom of the hill, it will be put on him because he signs the contract."

There are no DAU courses that address accountability as defined by the respondents.

4. Even-tempered

The participants generally asserted that successful contracting officers controlled their reactions to stressful situations. In that light, one manager suggested, "Contracting officers have to be unflappable. They can't get flustered or respond to unprofessional behavior; and during negotiations they need to hold back

their emotions." In an interesting contrast, one manager commented "control doesn't mean you should never show anger in any situation. There are times when someone messes up, and anger is an appropriate response." Although relatively few comments were provided pertaining to this topic, the participants generally appeared to value self-control.

There are no DAU course descriptions or objectives that address even-tempered behavior as defined by the respondents.

5. Customer Oriented

The respondents indicated that the contracting officer must recognize that his or her work is in the support arena. Although there were relatively few respondents who placed this attribute in their top 5 responses, there were dissenting comments with respect to this attributes inclusion. One manager commented that she expected contracting officers to avoid a "no possible way" attitude when challenged with seemingly complex acquisitions. She added that the contracting officer is obligated to seek alternative solutions to obtain difficult to acquire supplies or services "within the boundaries of the law." Along the same line, one manager commented, "Contracting is a customer-oriented business. You've got to realize that

you are there to get what your customer needs, and it'll be a lot easier if you are aware of the politics that are involved in getting things done." It is noteworthy to recognize the direct relationship this individual saw between the attributes.

DAU does not teach a course that instructs an individual on how to be customer oriented. However, the researchers postulate that office level mission statements and goals may emphasize the importance of a contracting officer taking a customer oriented approach.

Table 15. Operational Contracting – Other Characteristics

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Ethical	12	46%	50
2	Confident	10	28%	50
3	Accountable	6	20%	50
4	Even-Tempered	7	16%	50
5	Customer Oriented	4	16%	50

All critical attributes in the operational contracting specialty area were previously discussed.

Table 16. Specialized Contracting – Other Characteristics

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Ethical	4	45%	40
2*	Hard Working	5	33%	40
3	Confident	3	30%	40
4	Even-Tempered	3	25%	40
5*	Professional	2	20%	40

2. Hard Working

The participants consistently considered a strong work ethic to be a critical attribute. The sometimes time intensive tasks associated with the acquisition process required contracting officers to remain "diligent and determined."

There are no DAU courses that address an individual's work ethic as defined by the respondents.

5. Professional

The experts considered the nature of the field and type of people the contracting officers associated with on a daily basis in determining the criticality of this attribute. One person stated the contracting officer must "maintain a high level of professionalism no matter the subject or the audience." Additionally, some participants commented that the contracting officers received training consistent with other professions, and this training significantly contributed to the professional nature of the field. Likewise, one participant noted that the existing professional societies, like the NCMA for instance, encouraged contracting officers to increase their professional knowledge, skills, and abilities.

DAU does not teach a course that instructs an individual on how to be a professional. However, the researchers speculate that office level mission statements and goals, and the conduct of other experienced professional contracting officers will emphasize the importance of professional behavior.

Table 17. Systems Contracting – Other Characteristics

Rank	Attribute	Frequency	% Weighted Points Received	Weighted Points Available
1	Confident	4	33%	45
2	Ethical	3	29%	45
3	Accountable	3	27%	45
4	Even-Tempered	3	24%	45
5*	Discerning	2	22%	45

5. Discerning

The inputs provided indicated that the experts valued the contracting officer's ability to distinguish truth from fiction in complex situations and recognize the strengths and weaknesses in others. This characteristic was considered to be particularly important in conducting negotiations. One manager noted that an effective contracting officer is capable of "picking the important facts out of data inputs." He asserted that the contracting officer needs to be able determine the "real meaning" of information he is presented. Another manager concurred with this comment. She asserted that the

contracting officer "must look for what is not being said in a negotiation." In general, the participants recognized that discernment is a significant competence for the contracting officer to acquire. However, no subjects indicated that this attribute could be learned by the contracting officer.

There is not a DAU course that instructs individuals how to be discerning.

Attribute Applicability - Military v. Civil Servant Status

Do the attributes listed previously vary in importance with respect to the contracting officer's status as a military member versus civil servant?

The table below provides a breakdown of the responses to the question above.

Table 18. Military vs. Civilian Contracting Officer Attribute Criticality

Specialty Area	Difference Exists	No Difference
Operational	0	10
Specialized	2	6
Systems	0	9

As indicated by Table 18, only 2 of the 27 respondents asserted that the attributes should vary with respect to the contracting officer's status as a military member or civil servant. While most declared that the attributes should be considered equally important between the 2

categories, 1 of the dissenters argued that the military contracting officers should possess higher levels of the attributes based upon the fact that they would eventually become the leaders of the acquisition work force. The other individual declared that the military officers should have a wider-ranging understanding of the various contracting specialty areas, since they are frequently reassigned. In contrast, the vast majority of managers asserted that the attributes should not vary; however, many did comment that they believed military contracting officers had a more difficult time attaining the attributes as a result of their constant reassignments between contracting specialty areas.

Potential Weaknesses

1. Although statistical data was collected and utilized for this study, it could be argued that the findings are not statistically significant since only 27 participant questionnaires were used.
2. The database input required the authors to make subjective interpretations in some cases, and condense verbose responses in other cases. Therefore, it may be

argued that the research team subjectively accomplished this effort in a biased manner, and a result, did not capture the true intentions of the participants in all instances responses. However, to the maximum extent possible, the authors attempted to contact and clarify respondents when their inputs seemed imprecise or unclear. Furthermore, their categorizations were independently validated by a qualified third party.

3. Wide-ranging applicability of the findings may be limited due to the small number of participants involved in the project.

4. Due to the respondents' non-anonymity in responding to the research team's questionnaire and follow-up interview sessions, it is possible that the respondents were hesitant to make negative comments regarding some subjects addressed in the study. This issue may be of particular importance with respect to the question concerning the differences in the critical attributes between the military and civilian contracting officers. In order to minimize the effects of this potential weakness, the researchers ensured the participants that their inputs would remain confidential.

Summary

This chapter has provided an analysis of the quantitative data gathered for this study. In addition, it has provided a qualitative summary of many of the pertinent comments provided by the participants. The next chapter will provide the research team's conclusions and findings with respect to the research questions brought forward in Chapter I, based on the data collected and presented in this section.

V. Conclusions, Recommendations, and Suggestions for Further Study

Introduction

This chapter presents the research team's findings and conclusions to the 4 research questions posed in this study. Subsequently, the team presents its suggestions for further research.

Conclusions

Research Question 1. Knowledge, skills, abilities, and other characteristics: From the perspective of management, what are the most important attributes an effective contracting officer must possess under each of these categories, and what is the order of precedence for those attributes?

The aggregate questionnaire responses are summarized in Table 19.

Table 19. Aggregate Attribute Rankings

Ranking	Knowledge	Skills	Abilities	Other Characteristics
1	Regulations	Negotiation	Communication	Ethical
2	Business Practices	Computer Literate	Analytical	Confident
3	Technical	Organized	Interpersonal	Accountable
4	Law	Business Acumen	Leadership	Even-Tempered
5	Bachelors	Planning	Flexible	Customer Oriented

Predictably, most of the knowledge attributes considered important to the managers were consistent with the available literature and regulatory guidance. The managers consistently asserted that knowledge of the regulations was a critical attribute of a successful contracting officer. This is likely due to the complex, regulatory nature of the career field. Contracting officers are essentially responsible for interpreting the sometimes indeterminate and often modified language contained in binding directives. Therefore, it is essential that they understand and maintain currency in those regulations in order to assure their determinations comply with the intent of the mandated policies and laws.

A thorough knowledge of current business practices ensures that contracting officers are able to recognize the strategies and techniques implemented by the corporations and individuals they conduct business transactions with. A lack of understanding in this area may lead the contracting officer to make poor decisions, or emphasize less important factors when dealing and negotiating with contractors. As the data indicated, some believe that the best way to effectively negotiate is to understand where the opponent is coming from. It logically follows that an in-depth

understanding of the contractors' standard business practices may be crucial in affording the contracting officer the best opportunity to obtain the government's needs from the contractors.

Technical knowledge is important, in that the contracting officer must have some understanding of the process used to acquire items or services, as well as some specific knowledge pertaining to the items or services being acquired. An understanding of the processes is crucial because the contracting officer is ultimately responsible for awarding the contract. As such, it is imperative that he or she knows how to properly conduct and accomplish an acquisition. Furthermore, the contracting officer benefits by understanding the technical data associated with the end item, because as the final award authority, he or she is likely to be the assumed point of contact for clarifications about the end item requirements as well as the acquisition process.

Knowledge of the law is essential since the entire contracting process is established based upon laws. Moreover, the contracting officer can be held legally responsible for failure to obey the laws governing the process.

The data indicated that the participants considered possession of a Bachelors degree to be the 5th most critical knowledge attribute of a contracting officer.

Interestingly, the reasons for including this attribute varied among the participants. It seems likely that many simply considered the degree to represent a level of professionalism in the contracting officer. However, one participant convincingly stated that he believed the degree is important because it creates a "level playing field" between the contractors and the contracting officers. He made this statement based on the assumption that most contractor representatives would have at least a Bachelor degree. This idea seems quite sensible.

Negotiation skills are considered to be the most critical skill attribute by the participants. The ability to negotiate effectively is the very essence of the field. Without possessing negotiation skills, the contracting officer is going to be ineffective. He or she is not going to be able get the best deals for the government because that inability to negotiate will likely be recognized by contractors. Subsequently, they will be in the position of dictating the acquisitions. Ultimately, the government will spend more tax dollars on projects when unskilled negotiators represent the government.

Computer literacy is a valued skill due to the nature of today's business environment. Work is being accomplished in the contracting offices with less administrative support. Therefore, it is now the contracting officer's responsibility to accomplish tasks that were once accomplished by others. However, the contracting officers' contracting workloads have increased at the same time they have been assuming these additional clerical responsibilities. Many assert that the ability to effectively operate computers allows the contracting officers to accomplish their contracting work, as well as their clerical work in a more expeditious manner than they would be able to without possessing computer skills.

Organizational skills are a must. The contracting officer's work requires that he or she maintain extensive pre-award and post-award documentation. The resultant documentation is often critical support for the contracting officer's determinations. Therefore, it must be accessible when required. Additionally, the contracting officer must often manage many multiple aspects of a single or multiple acquisitions at any given time. A disorganized individual will likely have a very difficult time simultaneously managing the diverse responsibilities.

The need for an individual to possess business acumen likely results from the recent movement to embrace commercial acquisition practices and standards. Essentially, the move toward commercial practices has forced the contracting officers to veer away from the "lowest price" mentality and adopt the "best value" ideas espoused by their industry counterparts.

Planning is the 5th critical skill attribute supported by the participants. The nature of the career field dictates that the contracting officer must be an effective planner. Much of a contracting officer's work is determined by completion of previous tasks. Possession of effective planning skills may enhance the contracting officer's ability to accomplish his or her tasks in a timely manner.

The respondents consistently assert that successful contracting officers are able to communicate effectively. This attribute includes the abilities to write, speak, and listen, and comprehend. It seems clear that a contracting officer must be an effective communicator. He or she is constantly passing or receiving information internally and externally. Internally, he or she is the focal point for the information that is provided up the chain-of-command. Externally, the contracting officer represents the government in its contractual dealings with contractors.

Therefore, it is essential that the information the contracting officer passes and receives is accurate and timely.

The respondents also determined that a contracting officer must be an effective analyst. This seems quite logical, since the contracting officer is often responsible for evaluating between proposals and alternative solutions in many cases. This ability also seems to acknowledge the contracting officer's need to "read between the lines" and determine the true meaning of occasionally cryptic information provided both internally and externally.

Contracting officers are also required to work well with others. The nature of the career field dictates that contracting officers hone their interpersonal abilities. They serve as the focal point for all correspondence between the government and contractors. The inability to get along with others could detract significantly from the goals of obtaining supplies and services at reasonable prices. They must be able to put aside personal differences with their contractor counterparts in order to insure the ultimate objectives are achieved. Likewise, the contracting officer is often responsible for leading the government's technical representatives during acquisitions. He or she must be able to work effectively with a wide

array of personalities. In this way, the attributes interpersonal and leadership ability attributes seem to relate closely to each other.

Flexibility was the 5th most important ability attribute recognized by the participants. It seems reasonable to assume that a contracting officer would benefit by possessing this attribute. After all, the contracting officer's workload is essentially dictated by external requirements. He or she must therefore have the ability to react to the present situation and prioritize work accordingly. Additionally, the contracting officer can often increase efficiency by recognizing that various solutions to a problem may exist, and a willingness to consider alternatives seriously may expedite agreements.

Under the heading of other characteristics, the respondents considered ethics to be the most important attribute a contracting officer should possess. Essentially, the belief seems to be that a contracting officer is obligated to play by the rules as established by law. However, it also seems apparent that the contracting officer is expected to conduct himself or herself in a manner which minimizes even the appearance of a possible impropriety. This essentially means that the contracting officer must go beyond what is dictated by the law and

avoid putting or allowing himself or herself to enter a situation which other may perceive as unfair, or advantageous to a specific contractor.

Confidence is another valued characteristic. This makes perfect sense because the contracting officer is required to make definitive decisions that effect the state of the acquisition. A lack of confidence in individual abilities will likely be noticed by the contracting officer's contractor counterparts and used against him or her. Additionally, the government team members will recognize confidence, and those personnel will be more likely to support the decisions of a contracting officer they perceive as confident.

The desire for a contracting officer to be accountable is likely a result of the fact that contracting workloads are often transferred between contracting officers or contract teams. It follows that this practice has often forced the receiving contracting officer to correct previous mistakes and problems that arose as a result of those errors. Moreover, accountability is a characteristic that is thrust upon the contracting officer whether or not he or she wants to accept it since the contracting officer is the only person with a warrant and signatory authority. Therefore, it is certainly desirable that the individual

recognizes his or her accountability and makes decisions with that fact in mind.

An even temperament is also preferred. This career field is often perceived as being very stressful. It certainly seems sensible that the job will be more enjoyable if the contracting officer is able to maintain his or her emotions under the pressure. Although it did not make the aggregate top 5 list, many respondents also indicated that the contracting officer should have a sense of humor. The reasons cited for that attribute were similar to those supporting an even temperament.

Finally, the data indicates that the managers perceive an effective contracting officer will take a customer oriented approach to his or her job. This is attentive to the fact that contracting officers are support personnel. Their function is to acquire the needs of others. Any other approach to the work would be illogical. This does not imply that the contracting officer should accomplish the work in the manner suggested by the end user; however, he or she should attempt to provide the desired support under the constraints of the laws and acceptable good business practices.

Research Question 2. Contracting Specialty Areas: Do these attributes apply equally among the different program areas, or do the managers' desired attributes differ with respect to contracting specialty areas?

Surprisingly, the study revealed very few differences in the perceived critical attributes by specialty area. While the research team expected the operational and specialized areas to be somewhat similar, it was nevertheless surprising to see the lack of variation in the responses provided by the managers from the systems contracting specialty area in comparison with the other 2 areas. Correspondingly, the comments provided by the managers generally did not seem to indicate that they expected specific attributes in their respective contracting officers specifically because the contracting officer worked in that particular specialty area.

This may tend to indicate that there is no significant need for separate DAU training programs by specialty area. Instead, it may be appropriate to conduct specialty training at a more local level. Furthermore, it may be appropriate to expect that individuals entering the career field are just as likely to succeed in one specialty area as they are in another.

Research Question 3. Military versus civilian contracting officers: Do the managers believe that the same attributes required to make a military contracting officer effective apply equally to a civilian contracting officer, and vice-versa?

Interestingly, even though the number of responses asserting differences should exist was small, several managers supporting the idea that the attributes should be consistent, nevertheless, recognized that differences do exist between the typical technical performance capabilities in the two groups. The differences do not appear to apply to the attributes required. Instead, the commentaries suggested that several managers believed military contracting officers often take more time to develop as a result of various factors beyond their control, which do not affect civil servants. For example, some indicated that frequent reassignments were perceived to decrease the military contracting officer's ability to see projects through from beginning to end, and therefore gain a "big picture" view of the acquisition. Furthermore, some perceived that this, in turn, prevented military contracting officers from developing desired in-depth knowledge of the programs they purchased and administered.

Additionally, some participants noted that the significant time spent by military contracting officers working non-contracting related duties resulted in their decreased efficiency. No specific non-contracting projects were described, however, the research team suspects these comments referred to additional duties accomplished concurrently with the contracting officers' regular workloads.

Research Question 4. To what extent do current contracting officer training opportunities support the recipients in acquiring the attributes sought by management?

As discussed in Chapters 2 & 4, the DAU courses provide training that directly attempts to increase the knowledge of contracting personnel. However, some participants noted that a number of the attributes are not the type of attributes that can be learned in a classroom setting. In fact some managers noted that many of the attributes could only be obtained and honed through experience. This seems quite reasonable. While the DAU courses are certainly an appropriate forum for providing students with the knowledge attributes like regulations, technical procedures, business practices, the acquisition system, and law; it may be more

difficult to effectively address the skills, abilities, and other characteristics espoused by the participants. That it not to imply that some of the attributes under these categories are not or cannot be taught by DAU. For example negotiation techniques are specifically incorporated into CON 104 course. Additionally, it is logical to assume that many of the attributes are addressed and practiced indirectly as a result of the trainees participating in the course exercises. However, as a general rule, the courses do not provide training directly addressing the skills, abilities, and other characteristics espoused until the trainees enter the 300 level courses.

Although comments regarding this topic were somewhat limited, some meaningful can still be derived. One expert noted that while the courses were important for contracting officers to attend, he additionally believed that too much emphasis was placed on sending individuals to attend the certification courses too early in their careers. This argument seems to indicate, with concurrence from the researchers based upon their personal experiences, that individuals may benefit more from the DAU courses once they have some practical work experiences that they can relate to their coursework. Unfortunately, it often seems that contracting personnel are pushed through the DAU

educational system so early in their careers that they do not receive the full benefits that they might if the courses were completed over an extended time frame. This, however, may be further complicated by the desire of managers to insure that their personnel are receiving their APDP certifications in the most expeditious manner possible. In one sense, the managers may be attempting to further the careers of their subordinates by moving them through the educational system, while at the same time, they may inadvertently be detracting from the individuals' overall education by sending them through the programs before they are truly prepared.

Recommendations

In considering specific attributes addressed by the managers, it would seem that at present, DAU is generally providing significant training related to the key knowledge attributes desired by the managers. However, it might be appropriate for the certification courses to require more training in the skill attribute areas. For example, while the managers unanimously consider negotiation skills to be critical, it is only addressed in 1 class. The CON 104 course merely incorporates it as one of 3 major topics covered over a 12-day period. It could be argued that an

attribute of this importance should be addressed more extensively, and perhaps reinforced by incorporating it into other courses. Additionally, the aggregate skill data summary indicates that the managers perceive computer literacy to be important in today's contracting environment. As such, DAU might consider polling the manager to determine specific computer related curriculum that could be added into their programs. In addition, the research team recognizes that although DAU certification courses may not necessarily be the appropriate forum for providing instruction in organizational and planning skills; it may, though, be appropriate that they address the importance of the contracting officers developing business acumen.

In considering the desired abilities, the DAU courses seem to provide reinforcement of the attributes desired by managers. Although the ability attributes may not be the focus of the various courses, the group interactions and participative exercises seem to afford the participants the forum to practice communication, interpersonal, leadership, and flexibility.

As discussed previously, the other characteristic attributes are not generally specifically instructed by the DAU courses. Overall, the attributes desired under the

other characteristics category are less contract specific in nature. Therefore, the research team was not concerned when it discovered that the majority of the desired attributes were not covered by the DAU certification courses. It is likely that the majority of attributes advocated under this category would either be inherent in the individual contracting officers, or they may be acquired through experience.

Suggestions for Further Research

This study accomplished its stated goal of providing answer to the original 4 research questions. However, the team found that time required by individuals to complete the questionnaire ultimately decreased the number of responses received. As such, it would be interesting to compare the findings of this quantitative/qualitative study with a similar, yet strictly quantitative study that produced statistically significant findings.

Another suggestion for future study might involve the dissemination of this study's findings to managers of contracting officers in order to conduct an in-depth study to determine whether or not they believe that DAU courses are appropriately addressing the desired attributes supported by this study. This was one several topics

addressed by this study; however, a study which focuses exclusively on this topic may prove useful to the education planners. Additionally, this study may seek to determine whether or not contracting officers are acquiring, via some other program or method, the attributes that are not addressed in DAU certification courses.

Finally, although potentially controversial, it would be interesting to see the results of a study which delves into the perception that military contracting officers often require more time to become proficient in the contracting officer duties than their civil servant counterparts.

Summary

The Air Force is continuing to accept the challenge of "doing more with less." The contracting career field is no exception to this rule. Therefore, it is imperative that personnel selected to perform acquisition duties are qualified and show early potential to be proficient and progress within the profession.

The findings of this study indicate that the front line contracting officer supervisors and their superiors have definite opinions concerning the attributes they are seeking in their contracting officers. It seems reasonable to assume that no one knows better than these individuals

which qualities are required in the members who will lead the acquisition process. Therefore, the research team suggests that the findings generated by this study could assist those in charge of making the initial contracting career field hiring decisions. It is recognized that not all personnel who enter the career field will necessarily become warranted contracting officers; however, the pre-existence of the desired attributes not normally taught in the DAU courses, may provide a significant indicator of the individuals' potential for success.

Considering the professional nature of the field and the government push toward implementing more commercial practices, it might be worthwhile to contemplate hiring experienced contracting officers from the commercial sector who already possess to some degree, the attributes desired by management. Additionally, it may be reasonable to consider expanding Education with Industry (EWI) opportunities for existing government contracting officers in order to afford them the opportunity to gain direct insight into the commercial practices.

Finally, in order to evaluate the desirable "personality-type" characteristics discovered under the other characteristic category, the researchers suggest that as part of the hiring evaluation process, the hiring

authorities might consider using validated aptitude and personality tests during hiring.

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AFIT RESEARCH ASSESSMENT

The purpose of this questionnaire is to determine the potential for current and future applications of AFIT thesis research. **Please return completed questionnaire to: AIR FORCE INSTITUTE OF TECHNOLOGY/LAC, 2950 P STREET, WRIGHT-PATTERSON AFB OH 45433-7765.** Your response is **important**. Thank you.

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2. Do you believe this research topic is significant enough that it would have been researched (or contracted) by your organization or another agency if AFIT had not researched it? a. Yes b. No

3. **Please estimate** what this research would have cost in terms of manpower and dollars if it had been accomplished under contract or if it had been done in-house.

Man Years _____ \$ _____

4. Whether or not you were able to establish an equivalent value for this research (in Question 3), what is your estimate of its significance?

- | | | | |
|--------------------------|----------------|----------------------------|--------------------------|
| a. Highly
Significant | b. Significant | c. Slightly
Significant | d. Of No
Significance |
|--------------------------|----------------|----------------------------|--------------------------|

5. Comments (Please feel free to use a separate sheet for more detailed answers and include it with this form):

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